This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

[redacted]
600008261N

G.179. a. 14.

E. BIBL. RADCL.
~~76.D.25~~

C

15[redacted]2 · 242

DISEASES OF THE EYE.

Fig. 1.

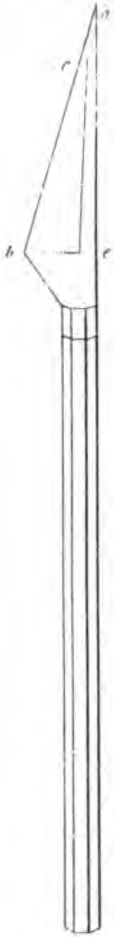


Fig. 2.

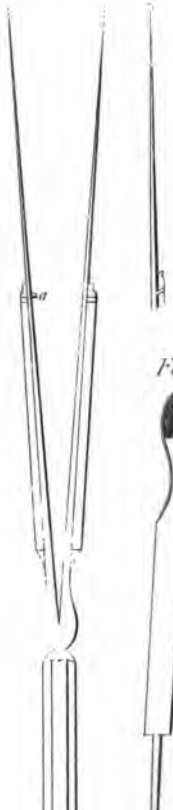
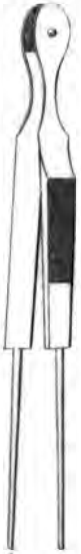
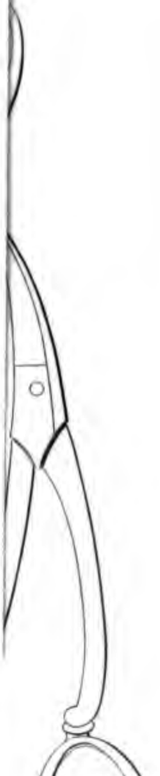


Fig. 3.





10.

A

TREATISE

ON THE

DISEASES OF THE EYE;

INCLUDING THE

Doctrines and Practice

OF THE

MOST EMINENT MODERN SURGEONS,

AND PARTICULARLY THOSE OF

PROFESSOR BEER.

BY GEORGE FRICK, M.D.
OPHTHALMIC SURGEON TO THE BALTIMORE GENERAL DISPENSARY.

A NEW EDITION WITH NOTES,

BY RICHARD WELBANK,
MEMBER OF THE ROYAL COLLEGE OF SURGEONS, AND OF THE
MEDICAL AND CHIRURGICAL SOCIETY OF LONDON.

With an Engraving.

LONDON:
PRINTED FOR JOHN ANDERSON,
MEDICAL BOOKSELLER, WEST SMITHFIELD;
ADAM BLACK, EDINBURGH; W. R. M'PHUN, GLASGOW; AND
HODGES AND M'ARTHUR, DUBLIN.

1826.

LONDON:
PRINTED BY C. SMITH, ANGEL COURT, STRAND.

TO

WILLIAM LAWRENCE, Esq. F.R.S.

SURGEON TO ST. BARTHOLOMEW'S HOSPITAL.

AND TO THE

LONDON OPHTHALMIC INFIRMARY, &c. &c.

THE FOLLOWING EDITION OF THIS WORK IS INSCRIBED, WITH
A FULL SENSE OF THE ACKNOWLEDGEMENT DUE TO HIS
INSTRUCTIONS,

BY

HIS OBLIGED PUPIL,

RICHARD WELBANK.

102, *Chancery Lane.*

EXPLANATION OF THE PLATE.

FIG. 1. Beer's Cataract Knife. In the construction of this instrument, it will be necessary to imitate the exact size and dimensions of the figure in the plate. The back of the knife from *a* to *e*, should be made perfectly straight and rounded off, and its lancet-shaped point *c*, *b*, possessed of a sharp cutting edge, in order to facilitate its passage through the cornea. The sides of the knife should be gently curved.

FIG. 2. Represents Reissinger's double-hooked forceps for the performance of Koredialysis. The hooks should be made very fine and delicate, and so constructed as to lie most accurately over each other, when the blades of the forceps are brought together. They are prevented gliding from each other in this state, by the small steel head *a*, which fits into a cavity on the opposite branch.

FIG. 3. A fine Eye forceps, constructed with a small hook or tooth *a*, at one extremity, which fits when closed into a corresponding cavity in the other, serving in this manner to prevent the branches from gliding over each other, and to retain more firmly whatever is grasped. This instrument is employed for the extraction of foreign bodies lodged in the conjunctiva, in the extirpation of pterygium, or for the removal of opake capsule after the extraction of the lens.

FIG. 4. Daviel's Curette, which is represented at the upper part of this instrument, should be made of gold or silver, in order to prevent its rusting. The round curved needle at the upper extremity of the handle is commonly employed for dividing the capsule in the extraction of the lens.

FIG. 5. Mr. Saunders' needle, for dividing the lens in the operation of Keratonyxis. " Its length from the point to the extremiyt of the shoulder next the handle, is one inch and an eighth. From the shoulder to the centre of the blade, it is round;

from the centre to the point, it is gradually flattened on the sides, being reduced so thin near its extremity as to be somewhat flexible. It has on both sides its point very sharp edges, which extends a little beyond its angles."

Fig. 6. Is a representation of Schmidt's curved lancet-shaped needle, for the performance of Koredialysis. The point and edges of the instrument should be rendered as sharp as possible. The curve *b* of the plate is perhaps somewhat greater than necessary.

Fig. 7. A sharp lancet-shaped cataract needle, employed for dividing the capsule, or depressing the opake crystalline. Its sides should be very sharp, and the neck of such a size as to fill up the opening made by the lancet point.

Fig. 8. Represents a sharp-pointed Cataract hook. This instrument is employed in the operation of artificial pupil.

Fig. 9. Bartische's forceps for extirpating the fold of skin in the operation of Trichiasis. The plate *b*, *c*, should be slightly curved, and hollowed out on the sides, so as to grasp more firmly the fold of integuments.

Fig. 10. The double-curved scissors of Daviel, used for enlarging the wound of the cornea in the extraction of cataract. The blades of this instrument should be gently rounded off at their points, and made as sharp as possible. The surgeon should be provided with two pair of these scissors of different curves, to enable him to operate on either eye.

CONTENTS.

PART. I.

OPHTHALMIA.

CHAP. I.

General Inflammation of the Eye.

Page.
Ophthalmitis. 13

CHAP. II.

Inflammation of the Conjunctiva.

A. Catarrhal Inflammation of the Eyes, *Ophthalmia Catarrhalis* 23
B. Strumous Inflammation of the Eyes, *Ophthalmia Scrofulosa*. 29
C. Purulent Inflammation of the Eyes, *Blepharo Ophthalmo-blennorrhœa*. 37
D. Gonorrhœal Inflammation of the Eyes, *Ophthalmia Gonorrhoica* 50

CHAP. III.

Rheumatic Inflammation of the Eyes.

Ophthalmia Rheumatica. 58

CHAP. IV.

Inflammation of the Iris.

A. Idiopathic Inflammation of the Iris, *Iritis Idiopathica*. 65
B. Syphilitic Inflammation of the Iris, *Iritis Syphilitica*. 68
C. Gouty Inflammation of the Iris, *Iritis Arthritica*. 70

CHAP. V.

Internal Inflammation of the Eye.

Ophthalmia Interna.......................... 81

PART II.

OF THE DISEASES WHICH ATTACK THE INDIVIDUAL TEXTURES OF THE EYE.

CHAP. I.

Of the Diseases of the Conjunctiva.

A. Winged Film, *Pterygium*.................... 84
B. Tumours and Excrescences of the Conjunctiva, *Lipoma Conjunctivæ*................. 89

CHAP. II.

Of the Diseases of the Cornea.

A. Opacities and Specks of the Cornea, *Nebula et Maculæ Corneæ*....................... 91
B. Ulcers of the Cornea, *Ulcus Corneæ*.......... 97
C. Staphyloma of the Cornea.................... 101
D. Conical Cornea, *Staphyloma Corneæ Pellucidum*. 106

CHAP. III.

Of the Diseases of the Iris.

A. *Mydriasis*.................................. 108
B. *Myosis*...................................... 110
C. *Synechia anterior et posterior*................. 112
D. Prolapsus of the Iris.......................... 114
E. Artificial Pupil............................... 117

CHAP. IV.

Of the Diseases of the Retina.

Amaurosis.................................... 238

CHAP. V.

Of the Diseases of the Crystalline Lens and Capsule.

Cataract. 155

CHAP. VI.

Of the Diseases of the Vitreous and Aqueous Humours.

A. Glaucoma, *Cataracta glaucomatosa*. 218
B. Solution of the Vitreous Humour, *Synchysis* 221
C. Dropsy of the Eye, *Hydrophthalmia*. 223

PART III.

OF THE DISEASES OF THE APPENDAGES.

CHAP. I.

Of the Diseases of the Eye-lids.

A. Pure Inflammation of the Eye-lids, *Blepharophthalmitis Idiopathica*. 227
B. Erysipelatous Inflammation of the Internal Canthus, *Anchylops Erysipelatosa*. 230
C. *Psorophthalmia*. 234
D. Stye, *Hordeolum* 237
E. Granular Conjunctiva, *Sarcoma Palpebrarum*, ... 239
F. Inversion of the Eye-lid, *Trichiasis*. 241
G. Double row of Eye-lashes, *Distichiasis*. 242
H. Eversion of the Eye-lid, *Ectropion*, ... 247
I. Paralysis of the Eye-lid, *Blepharoplegia* 249
K. *Blepharoptosis*. 251
L. Cramp of the Eye-lid, *Blepharospasmus*. 252
M. Concretion of the Eye-lids, *Anchyloblepharon, Symblepharon*. 254
N. Encysted Tumours of the Eye-lids, *Tumores cystici Palpebrarum* 256

CHAP. II.

Of the Diseases of the Lachrymal Organs.

A. Inflammation of the Lachrymal Gland, *Dacryoadenitis*........ 259
B. Scirrhus of the Lachrymal Gland, *Scirrhus Glandulæ Lachrymalis*........ 262
C. Hydatid of the Lachrymal Gland, *Hydatis Glandulæ Lachrymalis*........ 263
D. Moist or Watery Eye, *Epiphora*........ 265
Stillicidium Lachrymarum........ 267
E. Pure Inflammation of the Lachrymal Sac, *Dacryocystitis Idiopathica*........ 269
F. Strumous Inflammation of the Lachrymal Sac. *Blennorrhœa Sacci Lachrymalis Scrofulosa*. 273
G. Relaxation of the Lachrymal Sac, *Hernia Sacci Lachrymalis*........ 276
H. Dropsy of the Lachrymal Sac, *Hydrops Sacci Lachrymalis, Fistula Sacci Lachrymalis*... 278
I. Inflammation and Scirrhus of the Lachrymal Caruncle, *Encanthis Inflammatoria et Scirrhosa*. 284

PART IV.

Of the Diseases which attack the Eye-ball.

A. Soft Cancer of the Eye, *Fungus Hæmatodes Oculi*, Cancer of the Eye, *Carcinoma Bulbi*..... 287
B Squinting, *Strabismus*—Oblique Position of the Eye, *Luscitas*........ 293
C. Near Sight, *Myopia*........ 297
D. Distant Sight, *Presbyopia*........ 299
E. Atrophy of the Eye-ball, *Phthisis Bulbi, Phthisis Corneæ*........ 301
F. General Varicose State of the Eye-ball, *Cirsophthalmia—Varicositas universalis Oculi*... 304
G. Protrusion of the Eye-ball, *Exophthalmos*..... 306

INTRODUCTION.

The volume which is here offered to the public is little more than the abstract of a Course of Lectures, which the author had prepared upon the Diseases of the Eye. Several years attendance at the various hospitals of Great Britain, and the Continent especially, afforded him ample means and facility of observation on the various diseases of this organ; and this opportunity has been considerably augmented, since his return to his native country, by his appointment to the Baltimore Dispensary, for the cure of the diseases of the Eye.

It is a lamentable truth that the pathology of the eye has not kept progress with the advanced state of pathological science in general; and this is attributable, no doubt, to the circumstance, that this branch of the healing art has been confined for so long a time exclusively to oculists. In this country, especially, the diseases of the eye have hitherto obtained but a small share of the attention of the profession; and a comprehensive work upon this highly important department of medicine, is a desideratum which still remains to be supplied. The work of the late Mr. Saunders is the only one to which the American student can have reference; but as this is confined entirely to the consideration of a few diseases of that organ, and was designed merely to make public some improvements and original discoveries of the author, its utility is limited to the particular subjects only of which it treats.

The diseases of the eye, it is true, do not differ from the diseases of other organs of the body, excepting perhaps in the great variety of them, and in the delicacy of the part affected. The eye may be said to resemble a microcosm, in which may be discovered all the various morbid changes which take place throughout the other organs and tissues of the body. Its transparency enables us, in some measure, to discover with more precision the seat and progress of these different affections, the gradual alienation of the natural and healthy into diseased and disorganized structure, and to detect with greater accuracy the diagnostic symptoms which mark each of its particular affections. Our pathology being in this manner more clearly determined, the therapeutic indications are directed with the greater success.

Of all nations, the Germans have excelled in this particular department of Medical Science; and we are indebted for most of the improvements in this branch of our art, to the industry and researches of this nation. Among the great and distinguished names, consecrated to posterity by their learned labours and services in the cause of mankind, that of Professor Beer stands eminently conspicuous in his "*Lehre von den Augenkrankheiten.*" For comprehensiveness of design, accuracy of observation, and delicate discrimination, this work stands unrivalled in any language.

It was the author's first intention to have presented to the public a translation of this work, but various considerations have induced him, for the present, to abandon the design. It may, however, not be misplaced here, to acknowledge the many personal obligations which the author, as a stranger and a student in Vienna, owes to the hospitality and enlightened intercourse of Professor Beer, while he confesses the freedom with which he has selected what is most valuable from his work. Having assumed it as the basis of his own, he endeavoured to add what he has conceived most important from the experience and practice of others, together with such remarks as his own observations have supplied.

The condensed manner in which the author has treated the subject will, he fears, occasion some disappointment to many of his readers; but he would remind them that the present work is intended simply as a Manual for such as are but entering upon the study of these diseases, and claims no pretensions to an elaborate or systematic treatise.

The arrangement and plan of the work, though not free from objections, is perhaps the most simple and natural that could have been adopted. It is founded upon the variety of textures which enter into the structure or composition of the eye, and is comprehended under four general divisions. The *first*, includes the various forms of inflammation of the eye; the *second*, the effects or sequelæ of this inflammation; the *third*, comprehends the various diseases of the appendages; and the *fourth*, such diseases as attack at the same time, several or all of the tissues of the organ.

The numerous distinctions noticed in the first part will appear, perhaps, somewhat frivolous and unimportant to the general student, who has been accustomed to look upon every inflammation of the eye as one and the same disease; it may be necessary, therefore, to offer a few words in explanation of this part of the subject.

Although the immediate seat of inflammation be confined to the capillary system of blood-vessels, yet this inflammation is found to assume various characters, according as the affection invades different organs of the body, or different tissues of the same organ. The characteristic signs of inflammation, it is true, are to be found in all organs of the system; but these are so modified by the peculiar structure or function of the tissue, or other circumstances of the patient, as to afford a basis for numerous distinctions. Nothing is more certain than that every acute inflammation of an organ begins in a single tissue of its structure, and is accompanied by a set of phenomena indicative of the peculiar tissue affected; and when this inflammation extends to the adjacent tissues, it is attended with another train of symptoms, alike indicative of the structure newly invaded. There is no better illustration of this fact than what is afforded us in the several varieties of this disease as it affects the eye and its appendages. Thus, the inflammation attacking the conjunctiva, is very different in its appearance and consequences from that which attacks the sclerotic coat, and both of these differ very widely from that inflammation which invades the iris, the lens, or the retina. Again, the symptoms which characterize an inflammation of the meibomian glands of the eye-lids, differ essentially from those which manifest themselves when the lachrymal gland or sac becomes the seat of the affection. The general treatment in all these cases is the same, but each variety requires some modification of treatment, depending upon the difference of structure and function of the part attacked.

Another, and more important distinction of ophthalmia, arises from the particular diathesis or morbid state of system, in which the inflammation occurs. Such ophthalmiæ are termed *specific*, to distinguish them from the former or *pure* ophthalmiæ, the symptoms being variously modified, according to the peculiar nature of the specific cause. Thus, in catarrhal ophthalmiæ, the redness is most prominent in that part of the conjunctiva which covers the sclerotic coat: there is neither pain nor any great degree of sensibility to light, whilst, in the strumous ophthalmia, there is the greatest intolerance of light, epiphora, and spasm of the eye-lids, with scarce any discoloration of the eye-ball. In the syphilitic and arthritic inflammations of the eye, there is the most vehement pain in the orbit or adjacent parts, whilst the other symptoms are comparatively moderate.

These different species of ophthalmia vary no less in the intensity of their symptoms at different stages of their progress. Some have very perceptible remissions; in others, we may even discover a complete and full intermission. Thus, in the catarrhal ophthalmia the patient is almost free of complaint through the day, the paroxysm, however, returning with the dawn of evening, the same exacerbation still more distinctly marked may be observed in the syphilitic form of iritis. In strumous ophthalmia, on the other hand, the patient generally suffers most through the day, and is relieved with the return of night.

There is this peculiarity also in the specific forms of ophthalmia, that they are always seen to attack particular tissues of the organ in preference to others. Thus, the rheumatic inflammation of the eyes constantly affects the sclerotic coat, or the tendinous expansions inserted into it: gout and syphilis are generally seated in the iris or choroidea. In the treatment of these several varieties of ophthalmia, therefore, it will be necessary to attend not only to the violence and extent of the inflammation, but to the particular state of constitution with which it is connected, or the specific cause which has given origin to the disease.

So far with regard to the distinctions of ophthalmia, in general. The more minute history of the several varieties will be more fully given in its proper place.

The author's perfect consciousness of many deficiencies is unaffected, yet the practical utility of such a work, and the increasing importance of the subject, induces him to offer it, such as it is, to the candid and liberal judgment of the profession.

Baltimore, June 30, 1823.

PART I.

OPHTHALMIA.

CHAPTER I.

OPHTHALMITIS.

Pure Inflammation of the Eye.

This species of ophthalmia is to be distinguished from all others, from its being seated in no particular tunic or tissue, but from its affecting equally all the tissues. Its characteristic symptoms do not differ from inflammation in other organs or textures of the body; thus, there is redness, heat, pain, and swelling of the eye, to which are superadded great sensibility of the eye and epiphora. These symptoms, however, never occur simultaneously, or with equal intensity in all varieties of ophthalmia; in ophthalmitis, on the contrary, they preserve an uniform progress. The eye begins to pain, at the same time that there may be remarked a slight degree of redness of the sclerotic coat; the patient complains of a sense of dryness or heat of the organ; the light is rendered painful, and the eye does not move so readily in its socket.

The pain in this disease is not confined to any particular part, but affects with equal violence the whole orbit. It is at first of an acute lancinating kind, darting through the eye-ball and head, without any perceptible intermission[1]; but diminishes, or is rendered more throbbing, as the disease advances to suppuration. The patient feels as if every moment his eye would burst, or as if the eye were too large for its socket.

The redness is equally diffused over the whole sclerotica, and there is no appearance of distinct bundles or fasciculi of vessels running over its surface, as in the other species of ophthalmia[2].

The swelling of the conjunctiva is, in many instances, so great as to project high above the cornea, which appears deeply imbedded in a wall of this membrane; sometimes it extends so far as to press asunder the eye-lids, projecting in the shape of a red fungous mass between them *. It

* This swelling of the conjunctiva is not caused, as was formerly supposed, by extravasation of blood, but merely by an unusual turgescence or fulness of the capillary vessels of this membrane. *Sugillatio*, or the extravasation of blood, which takes place from external violence, or contusion of the eye, differs very much from the appearance now described. The colour is a deeper red, it is more circumscribed; and if the part be scarified, a clot of blood will be found under the conjunctiva, which is loose, and detached from the sclerotica.

---

[1] Scintillation, and other luminous appearances sometimes noted. EDITOR.

[2] The vessels of the sclerotic are moved with the ball of the eye; those of the conjunctiva may be distinguished by their capability of separate motion. EDITOR.

is more or less sensible to the touch, and covered frequently with a puriform matter. The eye-lids are enormously enlarged and swollen, and cannot be separated without the utmost difficulty.

The aggregate of all the phenomena now enumerated, viz. a highly saturated redness of the eye, violent pain, and great turgescence of the conjunctiva, is denominated by the German pathologists, *Chemosis*; English writers apply the term to the latter symptom alone[1].

The coats of the eye are not the only parts affected in ophthalmitis; but the neighbouring glands always sympathize more or less in the affection. Hence it happens, as in the inflammation of all glands, that their secretions are impaired; and this accounts sufficiently for the dryness of the eye in the first stage[1]. As the disease advances, and the vessels become relieved, an unusual discharge of mucous or puriform matter takes place from the lids, which has caused this period to be denominated the *blennorrhagic*. The swelling of the lids now abates, and the organ is seen flooded in tears.

---

[1] The term *Chemosis*, etymologically, should be restricted to the swelling or projection of the conjunctiva, in consequence of which the cornea appears to be sunk in a cleft or pit of mucous membrane. Chemosis is not always caused "merely by an unusual turgescence, or fulness of the capillary vessels," (Vide note, p. 14.) Mr. Travers refers it to effusion of lymph, (Synopsis, p. 96.) Dr. Vetch to effusion taking place from the interior or attached surface. (Practical Treatise, p. 11.) Scarpa recommends a circular excision for the evacuation of effused blood. In analogous tumefaction of the upper eye-lid, Mr. Ware practised external puncture, to procure "the discharge of a bloody water." Partial ecchymosis is often visible in acute inflammation, and may be reasonably conjectured to occur in the active stages. Inflammatory chemosis is, indeed, generally dependent on the mere fungous engorgement of the mucous tissue, but may partially result from effusion beneath the external tunic. In cases of slight inflammation, partial chemosis sometimes results from the gravitation of effused fluids. Occasionally a very firm but pale chemosis occurs from effusion, and resembles a solid œdema or fat. In one case of this sort, which fell under my own observation, there were numerous white aphthæ visible on the mucous surface. (See also Dr. Vetch's Practical Treatise, p. 173.) The attention of the surgeon in cases of chemosis will be better directed to general than any partial treatment.

EDITOR.

If the disease be very violent, blood is sometimes effused into the anterior or posterior chambers, or the eye-ball runs on to suppuration. The globe is much enlarged, and protruded to some distance out of the socket, giving rise to what has been termed the *phlegmona exophthalmica*. This state is accompanied with a high degree of sympathetic fever; the pulse is frequent and hard, the tongue is furred, and the appetite much impaired. The cornea, which at first possessed a shining lustre, is now rendered dim and opake; or ulcerates and sloughs; so that the contents of the eye are more or less discharged. The eye-ball at length collapses, and the vision is completely destroyed.

The *causes* of ophthalmitis are, in general, the same as those which give rise to inflammation in any other part of the body. Thus, the disease is most liable to occur in persons of a robust, full habit of body, or of an irritable temperament. Sometimes it attacks those of the most weakly and cachectic habit; patients recovering from the lowest grades of bilious and typhus fevers. Disorders of the digestive organs act very often as a predisposing, and even exciting cause of ophthalmitis. Sudden changes in the temperature of the atmosphere, which operate upon the whole surface of the body, or upon the vicinity of the eye only, and the sudden cooling of the body, when it has been preternaturally heated, are the most common causes of ophthalmitis. Hence its frequency among smiths, cooks, bakers, persons at work in foundries, glass-houses, and the like. The disease is often excited by a vitiated state of the atmosphere; hence we may account for the inflamed eyes, which so often originate in overcrowded theatres, or other places of public resort. It is often caused by the contact of acrid vapours with the eye; as the vapour of lead, the fumes of tobacco, arsenic, mercury, and the several mineral acids; the vapour arising from the different excrementitious substances of the body, &c. Too violent and long continued exertion of the eye, microscopic researches, the reading of very fine print, writing in very small characters, the strong light from the sun, or from the snow, in Winter season, are all so many exciting causes of ophthalmitis. Foreign bodies lodged beneath the eye-lids, cause in a short time a violent ophthalmia. Sometimes such substances remain for a long time imbedded within the conjunctiva[1], without exciting much uneasiness. Professor Walter relates an instance, where a small splinter of wood lay for nine months under the upper eye-lid, covered by a pseudo-membrane; and the patient experienced no pain or inconvenience, after the first inflammation which formed this membrane, had subsided.

---

[1] Scalding lachrymation is often attendant on the early period of the first stage. EDITOR.

More commonly, however, such bodies keep up a continual state of irritation and inflammation, until they are removed; as in the case related by M. Demours *. The substances most commonly found in this situation are, grains of sand, lime[2], tobacco, splinters of wood, iron, steel,

* Vide Demours sur les maladies des yeux, &c. vol. i. p. 218. Paris, 1818.

---

[1] The foreign body becomes so enveloped, or is lodged so remotely as not to molest the very sensitive conjunctiva of the cornea. Several remarkable cases are given in Weller's Manual, by Dr. Monteath, vol. i. p. 8. A small black particle of dust beneath the upper eye-lid is a very common and very painful cause of inflammation. Eversion of the lid, or examination from beneath, are sometimes impracticable, from the excessive intolerance and spasm. Very frequent success in removing the offending matter may be obtained by inserting the cilia of the under eye-lid beneath the upper lid, after withdrawing gently the latter from the surface of the eye. The irritation in these cases is far more acute and sudden than the sensation of sand experienced in all sudden inflammation of conjunctiva, but especially the catarrhal. EDITOR.

[2] If much lime have come in contact with the front of the eye,

&c. Ophthalmitis is seen to arise, in some cases, from the presence of insects, and more especially of the *pediculus ferox pubis,* lodging at the roots of the hair of the eye-lashes and brows. Several cases of this kind are related in Corvizart's Journal; and Beer and Scarpa mention instances of a similar nature. Ophthalmitis is frequently a consequence of any unusual violence or injury done the eye, or its vicinity, wounds of the eye-ball, &c. It is sometimes caused by inflammation of the brain, which has propagated itself along the tunics which envelope the nerve, to the eye. The reverse of this often happens, and the inflammation, which was at first seated in the tunics of the eye, is extended to the coats of the brain.

In the *treatment* of ophthalmitis, our first object should be the removal of such of the predisposing or exciting causes of the disorder, as may have produced, or tend, whilst they are permitted to exist, to protract the complaint[1]. Where the inflammation, therefore, is depending upon the general ill health of the patient, disorders of the

---

it should be gently removed with a little oil, and a camel's hair pencil, soft rag, or sponge. The consequent opacity is ordinarily irremediable. I had once an opportunity of shewing to Mr. Lawrence a boy who retained a very useful transparency of cornea, although the injury and separation of some of the external laminæ was obvious in the progress of the case. EDITOR.

[1] The suppression of constitutional discharges, as the menstrual, nasal, or hæmorrhoidal, may require appropriate treatment in addition to measures more directly applicable to the inflammation of the eye. ED.

digestive organs, long confinement in a close or vitiated atmosphere, attention must be paid to these circumstances, or all our attempts to cure the disease will prove utterly unavailing. When the disease is purely local, or attacks persons of a full robust habit, we are to be guided by the same general principles, as regulate us in the treatment of inflammation, when it attacks other textures of the body. If the system sympathize in the affection, and there is fever, connected with a full and hard pulse, one or more general bleedings should be advised[1]; and these may be succeeded by the local detraction of blood by cupping or leeches. These latter are best applied in the inner canthus, or immediately over the facial vein. By this means the blood will be drawn in an inconceivably shorter time, by a single leech, than by three or four, on any other part of the eye-lid; and it is a long established and well known maxim in medicine, that the more rapidly blood is drawn in the inflammation of any organ, the more beneficial will be the result. Scarifications[2] of the conjunctiva have a very good effect in diminishing the inflammation; they should only be employed after general and local bleeding, in the manner now mentioned, have been premised. To produce any decided benefit, however, they should be made deep and often, so as to affect a large discharge of blood in the shortest possible time.

---

[1] The venæsection should in such cases be carried ad deliquium, and from a free orifice, the patient being placed in the upright posture. EDITOR.

[2] I have tried scarification extensively, and am compelled to think its utility very questionable, either in acute or chronic inflammation; a rapid diminution of the distended vessels may be advantageously effected by the application of a single small leech to the conjunctiva of the lower lid. See on this subject a paper by Mr. Crampton, Dublin Hospital Reports, vol. iii. ED.

After the bleeding, recourse should be had to purgatives[1], and small doses of antimony given in such a manner as to keep up a constant state of nausea. They will be found most useful where the ophthalmia is combined with a deranged state of the digestive system. Blisters behind the ears, or to the nape of the neck, where the disease is at all obstinate, should never be neglected.

Strong stimulating collyria, as applied by many surgeons at the very commencement, or in the early stage of the inflammation, are always injurious; and the best application at this period are tepid fomentations. Care must be taken, however, not to continue these too long. There is a point when the vessels continue turgid, not from inflammation, but from the effects of it; not from obstruction, but from a want of power, and the capillaries are in a state, in which they are unable to unload themselves. In such a condition of parts; warm fomentations will prove injurious, and they are to be exchanged for cold lotions, or for mild astringent collyria. In addition to these, recourse may be had to slightly stimulating ointments, as the tutty or lead; and in the more chronic stage, to the diluted citrine, or Janin's salve *.

---

[1] A useful preference may be given to calomel. Tartarized antimony is the most efficient preparation, and may be given in combination with the mercury, in the proportion of a fourth or sixth of a grain, to three or four of calomel, twice a-day. Saline medicine, with the addition of the tinctures of digitalis and hyoscyamus, may be further directed.—EDITOR.

---

* This is prepared after the following formula :—

℞. Axung Porcin. Unc. semis,
tuti preparat. } aa. Dr. ij. vel semis
boli albi }
calc. hydrarg. alb: Dr. j. vel semis.
M. exactissime.

CHAPTER II.

INFLAMMATION OF THE CONJUNCTIVA.

A. *Catarrhal Inflammation of the Eyes.—Conjunctivitis Catarrhalis.*

The most simple form under which inflammation attacks the conjunctiva, is that of catarrhal ophthalmia, or what has been denominated by some of the English ophthalmologists, the *puriform ophthalmia.* The disease commences, most commonly, with a sensation of itching, or burning and stiffness in the borders of the eye-lids. The eye is dry and less moveable in its socket. On examining the conjunctiva, we shall find the redness unequally diffused over its surface, and the vessels running in distinct bundles, or fasciculi across the eye. That the inflammation is seated in the conjunctiva, and not in the sclerotica, is evident from the size of these vessels, from their being more deeply coloured, and from their lying more superficially. They swell and subside again more rapidly than those of the sclerotica. In the motions of the eye itself they remain stationary, but when the eye-lids are moved, they are observed to follow.

It is this particular enlargement of the conjunctival vessels, that causes the sensation[1], as if grains of sand, or other extraneous matter were lodged upon the eye.

The disease, like all other species of catarrh, has its exacerbations in the evening; and this is sufficient to distinguish it from the strumous ophthalmia, especially in children, which is generally worse through the day, and remits at night.

It is generally connected, too, with inflammation of some of the mucous membranes, and, like those, when violent, is ushered in with fever. The inflammation in some cases extends externally over the integuments, and the skin is excoriated from the very acrid secretions, which are constantly overflowing it. At the end of four or five days, a mucous or puriform secretion takes place from the lids. It is the thin tender membrane which this forms over the cornea, that causes the patient, in this stage of the disease, to see all objects as enveloped in a mist; if he looks at the candle by night, he sees it but dimly, or as surrounded by a circular zone or iris. Pustules of matter, likewise, scarcely visible to the naked eye, form along the margin of the eye-lids, or on some part of the conjunctiva, which bursting, pour forth their contents with the other secretions. Some of these contain nothing but a yellow serum; others are filled with a more purulent-like fluid. Both kinds are often dissipated by proper management; most commonly they burst, and discharging their contents, leave behind them small superficial ulcers. These vesicles, which are probably nothing more than the inflamed mucous glands of the conjunctiva, are very analogous to the aphthæ which are so frequently met with in the cavity of the mouth, on the lips, tongue, and other mucous membranes of the body. Professor Himly remarks, at a time when aphthæ of the throat were very frequent at Brunswick, he also found many vesicles, beginning with an inflammation of the sclerotic coat; sometimes the cornea was similarly affected [*].

---

[1] Catarrhal inflammation of the eye is generally suddenly established, and the sensation alluded to by the author is probably the result of rapid distention of the vessels of the conjunctiva. The quickness of accession has procured for it among the lower orders, the denomination of a blight in the eye. EDITOR.

The catarrhal ophthalmia is a disease very common in strumous habits, and is generally attended with a disordered state of the general health. It is most frequently accompanied too by disorder of the other mucous membranes. It is most common in the lower class of persons; in the children of such as are badly nourished; in individuals exposed to animal effluvia, &c [†]. No class of persons, however, is entirely exempt from its attack, and we find it in all ages and sexes. Professor Schmidt supposes such persons are more particularly liable to attacks of this disease, who have very red vermilion cheeks, with a fine parchment-like skin *.

---

[*] See *Loder's Journal*, vol. i.

[†] A variety of this ophthalmia, called in France *la mite*, is very common among nightmen, which M. Dupuytren attributes to the action of the hydro-sulphuret of ammonia.

The disease is known at times to reign endemically in whole families, schools, &c., and this has given rise to a very general opinion among the English surgeons of its being contagious. Like other diseases of the mucous membranes, this disease is found to exist epidemically in towns, or through large districts of country, depending no doubt upon certain inexplicable changes in the constitution of the atmosphere. Sometimes it is found to prevail at the same time with an epidemic influenza; and it is very remarkable, that all those persons attacked with ophthalmia, are exempted from the influenza. This circumstance is commonly accounted for, upon the principle so generally admitted among the laws of the constitution, viz. that one disease supersedes, or prevents another from taking place at the same time in the system. It is, however, more rational to suppose that the diseases are one and the same, attacking in both cases the mucous structure of the body.

In the *treatment* of this species of inflammation, the most mild antiphlogistic plan will be sufficient; and this should never be carried to the extent of debilitating the patient, as in some of the other varieties of ophthalmia. A single bleeding, followed by the application of a few leeches to the lower lid, will, in general, subdue the disease. Where the inflammation is slight, nothing more is necessary than to direct the patient to wash his eye frequently, through the day, with a little cool spring water, or some weak astringent lotion[1]. If, in addition to this, the patient confine himself to a dry and cool atmosphere, and a moderate diet, avoiding all spirituous liquors, he may frequently extinguish the disease completely in its origin, or at any rate allay very much the subsequent puriform discharge.

---

* *Ophthalmologische Bibliothek.* Band III. St. 1. Hanover, 1805.

In the second stage, or where the puriform secretion is already established, great benefit will be derived from a solution of the lapis divinus *,

---

* There is an old formula of St. Yves, employed very generally by Professor Beer, in diseases of the eye. It is prepared in the following manner :—

℞. Nitri depurati,
Vitriol cœrul.
Aluminis crùd. aa. Unc. viij. contrita et mixta, fluant in crucibulo, quibus sub finem adde camphoræ tritæ unc. semis; rite agitata refrigerantur.

---

[1] It is advantageous to adopt astringent collyria early, especially when there is no febrile excitement of the general system, as they frequently arrest the progress of the vesicular aphthæ, which are otherwise sometimes tedious. The addition of a grain or two of the extract of belladonna, to two or three grains of sulphate of copper, dissolved in four ounces of water, will powerfully aid in contracting the distended vessels, and sometimes speedily dissipate all vestiges of the inflammation. Where there is febrile excitement, more advantage will be derived after premising aperients, from a combination of saline diaphoretics, with some anodyne (perhaps a few grains of Dover's powder at night), than from general or profuse local bleeding. EDITOR.

anointing the lids at the same time with some astringent or stimulating ointment. When the disease approaches to a chronic state, the palpebræ may be scarified with much advantage, and the strength of the ointment somewhat increased. It will be advisable to exhibit, at the same time, some of the lighter tonics, as the mineral acids, &c. Like all other affections of the mucous membranes, the disease, when cured, is extremely liable to relapse, and when it subsides into this chronic state, to become very obstinate and intractable. Care must be taken on this account, to avoid all such causes as may in any manner conduce to bring about such a relapse.

Mr. Ware has particularly recommended the vinous tincture of opium*, in this affection; but I see no advantage it possesses over other stimulants.

---

* The preparation employed by Mr. Ware, was that of the London Pharmacopœia of the year 1746. It is decidedly preferable to any of the other preparations of opium in the various kinds of ophthalmia. Its formula is the following:—

℞. Opii colati Unc. j.
Cinnamoni
Caryophyllor. arom. aa. Dr. semis
Vin. alb. Hispan. Libr. semis.

Macera per hebdomadam sine calore, deinde per chartam cola. One twentieth part of the spirit of wine may be added to this mixture, to prevent it from spoiling.

B. *Strumous Ophthalmia.* — *Conjunctivitis Scrofulosa.*

It is scarcely necessary to remark, that this species of ophthalmia affects those only of a scrofulous habit. Hence it attacks children and young persons more frequently than adults, or such as are more advanced in age. I think I have most commonly seen it in children from the first to the sixth year. Very often it is the first symptom we observe of scrofula in the constitution; more commonly, however, it is connected with other characteristic marks of the disease, as thick upper lip, widely expanded nostrils, swollen abdomen, a loose spongy texture of the fibre throughout the body, &c.

The following are its chief characteristics:— The eye-lids, particularly the upper, are much swollen and red, generally half closed, more especially if the eye be directed towards the light. The patient can no longer move them, and any effort of the surgeon to separate them causes the muscles of the face to be thrown into violent action. If the patient be an adult, and can exert sufficient resolution to open his eyes, it will be observed, that he depresses at the same time the lower jaw. He seeks out the darkest recesses of his room, and is never easy, except when removed from the light. If a child, he buries his eyes in the pillow of his bed, or in the lap of his mother, to screen them from the ordinary light of day[1].

A quantity of acrid, pungent tears are constantly distilling from the half separated eye-lids, which falling over the cheek, produce an uneasy sensation of scalding and itching, and cause the patient to be continually rubbing his eyes. Sometimes the lachrymal sac and canals are also affected, and a similar discharge takes place from the nares, excoriating the lip and alæ of the nose.

Some little address is required in opening the eyes of the patient, in order to examine them. Children, in general, oppose most obstinately every effort of the surgeon, made with this view; and it is in vain to offer mild persuasion, or hold out any reward to gain their compliance. The best mode of proceeding is, to place the head of the child between the knees of the surgeon, who is seated. Carrying the fore-finger of his right hand over the orbit, the skin of the superior palpebra should be embraced with its point, and gently raised. This should be managed very skilfully, or the tarsus will be everted. The lower lid can be depressed in the same manner, with the forefinger of the other hand.

---

[1] In such cases there is ordinarily pallid skin and febrile excitement, the constitutional irritation being characterized by a quickness as well as frequency of pulse. The excessive sensibility of the eye may often be attended with little more redness than seems fairly referable to the attempt to expose the organ. Sometimes a very small, superficial and transparent ulcer of the conjunctiva corneæ may be discovered by lateral examination, and some particular direction of the light. In these cases, a few grains of extract of belladonna may be usefully added to very mild and tepid stimulant collyria. EDITOR.

On examining the eye itself, we shall perceive throughout the conjunctiva a diffused and unequal redness, the vessels running in distinct fasciculi, or bundles, as so many radii of a circle towards the cornea. The most of these terminate on the circumference of this latter tunic; a few continue even to its centre, and others do not pass beyond the sclerotica. These become more and more developed in the progress of the disease; and at the end of each there appears a phlyctenula, or small pustule, which bursting, pours forth its contents, and is converted into an open ulcer.

In a still higher grade of the disease, the vessels of the conjunctiva overshoot the margin of the cornea, and advance in radii to its very centre; the cornea, or rather the conjunctiva, which covers it, is seen of a reddish brown colour, swollen and thickened, presenting more the appearance of a muscular and fleshy texture, than that of a membrane. The iris and pupil are entirely concealed, and the vision is completely obscured. Some authors suppose that the cornea is really inflamed under these circumstances; hence they have given to this appearance the name of Corneitis. Professor Beer, who looks upon it as a mere thickening of the conjunctiva, terms it with much more propriety, *pannus*[1].

---

[1] The mere thickening of the conjunctiva may, with propriety, be termed Pannus. It is, however, highly probable, that the proper or the interstitial tissues of the cornea are also inflamed in the advanced stages of the disease. This may be reasonably inferred from the obvious appearance of the central portion of the inflamed cornea, and of the opacity during the diminution, and after the recession of inflammation. Again, Mr. Travers has noted (p. 392.) that "the vessels are not continuous with, but distinct from the vessels of the conjunctiva and beneath it." (See also p. 282.) The most apt verbal description of the discoloration of the cornea in these cases is given by Dr. Vetch, who compares it to "the appearance presented by the fracture of common gun-flint." A very striking representation of the collective characters of the disease is furnished by Mr. Travers (plate 1. fig. 4.), in which the dense zone of vessels encroaching on the cornea is accurately delineated. This latter character of the inflammatory processes becomes more evident as the number of the larger and more central vessels is diminished on the mitigation of the disease. Where the affection is once actually established, the patient rarely escapes without a slight glaziness of the cornea; where it has been suffered long to proceed under measures calculated only to repress more simple forms of inflammation, the consequent opacity is too often irremediable, and impairs or destroys vision. In the consideration of the treatment of this malady, it affords me pleasure to bear testimony to the efficacy of mercury. A combination of five grains of hydrarg. c. Creta, and three of extract of conium, or the pil. hydrarg. with pulv. ip. sc. in the same proportions, should be promptly administered three or four times a-day, till the mouth is affected. There is also a partial inflammation of cornea, which obstinately resists common measures; but whether it would be equally tractable by mercury I am not aware from experience. A semicircular or crescentic portion of the cornea assumes very quickly the dull opacity above described, and appears at the edge of the transparent tunic, like the white portion at the root of the finger nail. The dense vascularity is also observable in this form of corneitis at the margin of the cornea. There is more pain attendant on these affections, than on the more ordinary forms of strumous inflammation.

EDITOR.

One of the peculiar characteristics of strumous ophthalmia is, that it is entirely unaccompanied with pain. The same fact is observed with respect to scrofulous inflammation, when seated in other parts of the body. It is every where marked by a dulness of sensibility, and the pain, in comparison with that attendant upon the other varieties of inflammation, is always very slight.

Strumous ophthalmia is, moreover, characterized, as we have already noticed, by great intolerance of light. This, to be sure, is a common symptom in all inflammations of the eye; but in this, it is constantly the most predominant. Some endeavour to account for this symptom, by supposing the retina to be affected; but if this were the case, we should, in all likelihood, find the vision much impaired after the removal of the inflammation, which seldom or never happens. Mr. Travers is disposed to consider this morbid irritability, as dependant upon the state of the alimentary canal, with which it sympathizes; and this opinion will not appear altogether without foundation, when we reflect how often this affection is accompanied with derangement in the primæ viæ, as sordes, worms, &c.

This intolerance of light is generally a source of much anxiety and alarm to the parents, who regard it as a most dangerous symptom; but I have seen it continue for months, without any evil consequence; and as long as the cornea continues clear and transparent, no danger is to be apprehended.

In the *treatment* of strumous ophthalmia, it is scarcely ever necessary to resort to severe antiphlogistic means; blood-letting and purges being in general unnecessary, or acting, indeed, injuriously. Our chief indication should be directed to restoring the secretions of the body, which are all more or less impaired; and to fulfil this indication, nothing will be found more efficacious than the liquor ammoniæ acetatis, combined with the vinum antimonii; to which may be added, when it is exhibited to children, a small quantity of the syrup of poppies. Sometimes small doses of the ipecacuanha comp. will answer very well; or where the intention is to excite an action at the same time upon the bowels and cutaneous pores, calomel and opium in divided doses, will be found preferable. Where the cornea is opake, the calomel or blue pill may be given to the extent of slightly affecting the system*. Local applications are, in general, of little service. When the disease, however, is accompanied with violent contractions of the orbicular muscles (*blepharospasmus,*) much relief will be afforded by fumigations with laudanum in boiling water. The same effect is produced by warm poultices of crumbs of bread and laudanum, or fomentations of poppy-heads, hemlock, cicuta, &c.

---

* Dr. Benedict, of Breslaw, is in the habit of giving one grain of calomel, combined with a little sugar, two or three times in the day, with the most happy effect. He has continued its use, he remarks, for four or five weeks, without any unpleasant consequences. He advises, at the same time, the administration of the Liquor Cor. Cer. in the following form:—

℞. Liq. cor. cerv. Dr. ij.
Aq. anis. Unc. ij.
Syrup. simpl. Unc. j. M.

One or two tea-spoonfuls to be taken four times, daily. Vide *Beiträge für Praktische Medicin und Ophthalmiatrik.* Leipzig, 1812.

It is very important to attend to the dietetic treatment; and the greatest attention should be paid to the nutrition of the patient, to air, exercise, &c. His chamber should be large, well ventilated, and nearly obscured. It is always better to exclude the light from the eye in this manner, than by bandages enveloped close around the organ, which are always hurtful. There is no remedy so useful in allaying that morbid sensibility to light, so harassing in this species of ophthalmia, as a blister behind the ears, or to the nape of the neck; and this should be kept discharging for several days, or if necessary, repeated. Issues and setons are attended with similar good effects[1].

---

[1] The very striking advantages to be derived from counter irritation, in curing as well as preventing the relapse of strumous inflammations of the eye, are too important to be passed without additional comment. I have seen chronic strumous ophthalmia (succeeding the variolous inflammation of the eye) of seven years duration, quickly and effectually relieved by an issue in the arm. Having once, in the case of a boy, in Christ's Hospital, directed the healing of an issue, which had been made above twelve months, I found the immediate consequence to be a relapse of strumous inflammation and ulceration of cornea, resisting every measure but

If the disease do not yield to this plan of treatment, recourse should be had to tonics. The best of these, perhaps, are the mineral acids, which may be given to children in an infusion of roses. A solution of the oxymuriate of mercury, given in the dose of one-sixteenth of a grain, three times daily, is a favourite tonic with many of the most eminent English surgeons. Sedatives and tonics combined, have sometimes a very excellent effect; as the extract of bark with the humulus. To these should be added, the employment of mildly stimulating ointments, or astringent collyria; but, above all, the occasional use of the sea or shower bath[1].

---

the renewal of the issue. Very frequently have I arrested strumous ulceration of cornea, obstinately progressive, by cutting an issue in the arm. In all strumous ophthalmy, attended by constitutional excitement, and characterized by excessive local sensibility, the influence of issues in the arm is of singular efficacy. The insertion of peas or beads into an incision near the attachment of the deltoid is preferable, for the purpose of maintaining the counter-irritation. Cases may occur in which less objection will be made to piercing the lobe of the ear, and inserting a ring or silk, a plan from which unequivocal benefit is often speedily derived. A very convenient form of vesication will be found in the application of a strong thread, smeared with the emplastrum lyttæ, and firmly tied behind the ear, at the angle of its reflection. EDITOR.

[1] Beer's classification of strumous patients into the sluggish and irritable, with corresponding variations of treatment, is highly deserving attention. His doctrines on this subject will be conveniently found in Anderson's Foreign Quarterly Journal, vol. i. p. 288. I should regret to have omitted here the mention of the exceeding prevalence of worms in the alimentary canal of strumous patients. They are not an infrequent source of mesenteric and other diseases, and exist so commonly in strumous patients as

The *pannus*, which is left behind on the subsidence of the inflammation, readily yields in its recent stage to the employment of stimulating or slightly escharotic applications, as the introduction, once or twice daily, of the laudan. liquid. either alone or combined with æther. In the more chronic stage of the complaint, it will be necessary to have recourse to scarification of the part, or excision of the larger trunks supplying the pannus[1]; together with blisters or issues to the back of the ears or nape of the neck.

C. *Purulent Ophthalmia.—Blepharo-blennorrhœa. Ophthalmo-blennorrhœa.*

Mr. Ware has been the first to distinguish this species from the other varieties of ophthalmia; and from the circumstance of its being commonly attended with a puriform discharge from the lids, he called it the *oculus purulentus.* Until it shall be more satisfactorily determined that the secre-

---

to deserve the general vigilance of the surgeon. The Ol. Terebinthinæ, even when it is not required as a vermifuge, is a valuable medicine in counteracting mesenteric disease, tumid belly, and the irregular mucous relaxation of scrofulous children In these latter cases it should be combined with mucilage, and administered in the proportion of twenty drops, or half a drachm, twice or thrice a day. EDITOR.

[1] Where there is disposition to chronic distention, the upright position should be advised, as bed, or a recumbent posture is more favourable to congestion. ED.

tion is really purulent, it would be better to adopt the terms blepharo and ophthalmo-blennorrhœa; given it by Professor Schmidt[1], thus identifying its nature with the same inflammation, which occurs in other mucous structures of the body.

In giving the history and progress of the symptoms, I shall confine myself to the disease, as it appears in infants; not only because these are the most frequent subjects of its attacks, but because in them its characters are more strikingly defined and better developed.

Sometimes this disease makes its appearance immediately at birth, more frequently it commences three, six, or ten days after this period, and at other times, it is not seen until in the third or fourth month. It is rarely known to make its attack in the second or third year. Mr. Travers remarks, " that for one person affected with this disease above three months old, I should think that at least twenty are subject to it under that age."

The first stage of the disease is characterized by a slight redness of the palpebral conjunctiva, accompanied with a slight discharge of a mucous or puriform secretion from the lids. The eyes are impatient of light, and the child, on this account, is observed to keep them half closed. The conjunctiva, covering the globe itself, is never red or inflamed in this stage of the complaint. If the patient be more advanced in years, he will complain of a constant itching in the inner canthus; or he experiences the sensation of a grain of sand, or other extraneous body, rolling within the eye. This sensation, however, is not constant, but comes on suddenly, and as suddenly again departs. The symptoms becoming in a few days more violent, give rise to what may be termed the *second* stage of the complaint. The difficulty of separating the lids, or opening the eye, the intolerance of light, the redness and swelling of the conjunctiva, the puriform discharge from the lids are considerably increased. The discharge which was at first whitish, thin, and inconsiderable, assumes, in the progress of the disease, a more viscid consistency, and is of a yellow or greyish colour, very much resembling genuine pus. The quantity of this discharge is always proportionate to the intensity and extent of the disease. If the eyes be a little cleansed, by injecting between the lids a mixture of milk and water, or a mild solution of alum, the conjunctiva, particularly that part of it covering the superior palpebra, will appear much reddened and swollen. This appearance of the conjunctival vessels has been compared by Mr. Saunders, and not unaptly, to the villous surface of the fœtal stomach, when finely injected. If examined in this state, with a good microscope, the matter may be seen very distinctly oozing from the vessels which terminate on its surface.

---

[1] Vide *Opthalmologische Bibliothek.* Band III. St. 2. p. 107. Other synonymes are, *ophthalmia neonatorum, ophthalmia puriformis, ophthalmia orphanotropheorum, &c. &c.*

This swelling of the conjunctiva increases to such an extent in the progress of the disease, that the patient is unable to raise the upper eye-lid; and from the swelling, or from the matter collected beneath, it is so protruded from the eye-ball, as to conceal or cover entirely the lower palpebra. Great care must be taken by the surgeon, in examining the eye under these circumstances, how he separates the lids; for if this be done forcibly, or during the struggles or crying of the child, the upper lid is liable to be everted, and it is often difficult, or even impossible, to reduce it.

As the swelling of the conjunctiva increases, the external surface of the lid is more and more reddened and swollen; and these appearances are observed to a considerable extent over the cheeks and face. As the patient cries or struggles, this redness is seen to assume a more livid or purple colour.

The disease from the commencement is attended with more or less pain, which gradually increases with the progress of the complaint. This pain is sometimes periodical, coming on generally about bed-time, or in the course of the night. It is commonly confined to the globe itself; in other instances, it extends to the forehead, temples, or deep within the cranium, accompanied with the sensation, as if the eye were too large for its socket.

It frequently happens, before the puriform discharge is fully established, or in the commencement of the second stage, that some degree of hæmorrhagy takes place from the lids. This, instead of being an unfavourable occurrence, is always a desirable and pleasant circumstance, where the blood is of its natural healthy colour or consistency. The symptoms will generally be found to have considerably moderated, after such an occurrence. The swelling of the conjunctiva, when this has already taken place, is much diminished; and the subsequent discharge will be found not only lessened in quantity, but milder and healthier in quality. When such a hæmorrhagy takes place, even in the more advanced stage of the disease, it never fails to be attended with considerable amelioration of all the symptoms.

If the inflammation from the commencement, has spread rapidly from the conjunctiva of the palpebra, to that portion which envelopes the bulb, the latter will be found not only reddened, but greatly swollen; presenting, as it were, a thick wall of fleshy substance round the cornea. This latter tunic appears, in consequence, as if sunk or imbedded in the eye, and very often little more is perceptible than its centre. If the matter be allowed to collect, or stagnate for any time upon its surface, it acquires a thick membranous-like consistency, which often leads the surgeon to believe that the cornea itself has entered into suppuration.

Where the disease is more violent, the conjunctiva covering the cornea becomes affected; the cornea itself is rendered so opake, that the vision, if not completely destroyed, is at least very much impaired. If the disease in this state be neglected, or improperly treated, this tunic goes on to suppurate, and at length bursts. The pain is momentarily relieved by the rupture, and the patient flatters himself he is getting better. This, however, is altogether delusive, and the relief is owing merely to the escape of the humours, which before this occurrence had kept up an uneasy distention of the inflamed coats. Previous to such rupture of the cornea, numerous ulcers, penetrating more or less deep into this tunic, make their appearance, working their way by degrees entirely through, and giving rise to that species of staphyloma which, from its peculiar hue and granulated appearance, has obtained the name of mulberry staphyloma, or *staphyloma racemosum*. The cornea now either cicatrizes, losing altogether its transparency and convex form, or the lens and vitreous humour are protruded, and the whole eye enters into the state of suppuration.

It is seldom, however, that the disease advances to this violent grade, or produces such disorganization in the structure of the organ. More commonly, the cornea is not at all, or only slightly affected; and the purulent discharge from the lids, the redness and swelling of the conjunctiva, and all the other symptoms, after continuing ten or fourteen days, or longer, gradually abate, and give rise to what may be termed the *third stage* of the complaint. The patient is now again enabled to separate the lids; the viscid matter which, in the second stage, had firmly agglutinated the palpebræ, is formed now only during sleep, and is easily washed away with a little milk and water; the conjunctiva is no longer so much reddened and swollen. In a few weeks the disease totally disappears.

The description we have here given of the purulent eye, applies with so much strictness to what I have to say of the Egyptian ophthalmia, that I scarcely deem it necessary to draw any distinction between the two diseases. It is hardly a question with the best informed army surgeons of the present day, whether the Egyptian ophthalmia was known in England, and upon the Continent, prior to the expedition to Egypt, or not. The fact is sufficiently established; and we are warranted in believing that this species of ophthalmia existed, not only among the troops, who produced it by the application of corrosives and other substances to the eyes, for the purpose of invaliding themselves, but likewise sporadically, and even endemically in many schools and public institutions of Britain, long before the expedition, which was at first supposed to have originated the disease, was contemplated.

The purulent ophthalmia is most generally found to attack persons of a weak cachectic constitution of body. In this respect, it differs from the Egyptian ophthalmia, which is most common in those of a robust and full habit. Children are more liable to it than adults; and those of parents in the lower or middle classes of life, who are badly fed and clothed, than the children of the rich, or of those who are well nourished. The disease is very common as an endemic, in lying-in or foundling institutions; which is no doubt to be ascribed to the noxious air generated from the confinement of so many individuals in one room *. It is a common opinion with many physicians, that the disease in infants is owing to the contact of the eyes with some acrid discharge from the vagina of the mother, in the passage of the child, or during birth. I am rather disposed to look for the exciting cause of the disease in the sudden change of condition of the child from the womb to the world. In the womb, the eyes are closed, and subjected at all times to an equal temperature. It is little wonder, then, that an organ of such delicacy, on being exposed to the glaring light of

---

* Messrs. Mongenot and Jadelot have given the history of two epidemics of this kind, that prevailed in the Hospital for Sick Children at Paris; which may be found in the Medico-Chirurgical Annuary for that city. Similar epidemics have been very frequent in Christ's Hospital, London.

a fire or candle, as is too often practised by careless midwives and nurses, or to great vicissitudes of temperature, to currents of cold air, should suffer so severe consequences.

Assalini * and Larrey † both agree, that the Egyptian ophthalmia is not to be attributed, as many writers have supposed, to any peculiarity in the soil of that country, but rather to the common causes which excite ophthalmia in other latitudes; and the greater degree of violence, or the greater frequency of the complaint in Egypt, is accounted for by the more violent and frequent action of these causes. Thus, as in the case of infants immediately after birth, they refer the disease, and not without great reason, to the very vivid light and heat reflected from a sandy soil in these burning climates; or to the cold damp nights which succeed, in certain seasons of the year, to an intensely hot and dry day. It is nothing more, in their opinion, than a simple inflammation of a mucous texture, caused by *suppressed perspiration*. The same inflammation, attacking the lining membrane of the intestinal canal, produces the diarrhœas and dysenteries, so frequent and fatal in this climate; and the only reason of its falling more frequently upon the eye, is, that this organ, in a state of indirect debility, (to borrow an expression from the system of Brown) from the undue action of light and heat through the day, is more predisposed to its attacks, than any of the other textures or organs of the body.

---

* *Manuale di Chirurgia del Cavalliere Assalini*, Parte II. p. 111. Milano, 1812.

† *Memoires de Chirurgie Militaire et Campagnes*, de D I. Larrey, tome i. p. 208. Paris.

TREATMENT.

Much difference of opinion prevails among the English and Continental surgeons, with respect to the treatment of this species of ophthalmia. While the former have recourse to the most copious venæsection, aided by the strictest antiphlogistic means, the latter rely chiefly for the cure of this disease upon mild astringent applications to the eye, and the most gentle laxatives. It was a common practice among the English army surgeons in Egypt, to bleed *ad deliquium* on the first attack of inflammation; and it was not unusual, in this manner, to draw from sixty to seventy ounces of blood, before they could produce the desired effect. However efficacious such practice may be, when pursued with the hardy peasant, or robust soldier, it is very certain it can never be adopted with the sickly artizan, or the more luxurious inhabitant of the city; and a common bleeding of fourteen or sixteen ounces, rapidly performed, will prove infinitely preferable. This may be repeated according to the urgency of the symptoms, or the violence of the pain. In addition to the general bleeding, it is always advisable to abstract blood topically, by means of leeches or cupping-glasses to the temples.

Our next object in the treatment of purulent ophthalmia, should be to promote the free evacuation of the bowels, and restore the general secretions of the body. To answer these indications, I have found nothing more advantageous than a large dose of calomel and rhubarb, followed by small portions of tartar emetic, given at intervals of two or three hours, so as to keep up a constant nausea.

This mode of treatment, it is evident, will only succeed when the disease has been seen from its commencement, where it has occurred in persons of a robust plethoric habit, and made its attack with much virulence. When the disease has been of long continuance, before the surgeon is called in, where it attacks persons of a weak, cachectic constitution of body, where the conjunctiva appears flabby, where the discharge from the lids is profuse, ichorous, and thin, the body much debilitated, the countenance pale and sallow, the skin cold and clammy, the pulse weak and small, immediate recourse should be had to tonics. Of these the bark is, perhaps, the most efficient; and in the form of extract, it is easily administered even to children. To a child five grains may be given, beginning with one or two grains at a dose, three times daily. The decoction or powder will answer best to adult patients. The diet, at the same time, should be more generous and nutritious. The salutary effects of this remedy are often observable in a very short time. If sloughing of the cornea has been threatened, it will be seen immediately to arrest the slough, and induce a healthy action of the ulcer.

In addition to the constitutional treatment now recommended, it will be necessary for the surgeon to attend to the organ itself. Little more is requisite than to keep this clean, by injecting over its surface, every three or four hours, a weak solution of any astringent lotion, with a small silver or ivory syringe. The most simple of these washes, is a weak solution of common alum, or Bate's solution [*]. Beer recommends the tincture of opium, or Sydenham's tincture, diluted in some mucilaginous and aromatic water; and at a later period of the disease, the anointing the eye itself with the pure tincture [†] The eye after each injection, is to be carefully dried, and covered with the warm aromatic compress. Blisters behind the ears, or the tartar emetic ointment, are of great efficacy, and should never be neglected.

---

[*] ℞. Vitriol. cœrul.
Boli Armen. aa. Unc. iv.
Camphor. Unc. j.
M. ft. Pulvis.

An ounce of this is to be thrown into four pints of boiling water, then removed from the fire and allowed to settle. A drachm of this fluid, mixed with two ounces of distilled or spring water, forms the necessary wash.

[†] The following is the formula recommended by Professor Schmidt:—

℞. Aq. distillat. Unc. x.
Vitrol. alb. Scr. j.
Extract. Saturn. Dr. Semis.
Spt. Camphor. Dr. ij. M.

Vide *Ophthalmologische Bibliothek von Himly und Schmidt.* Band III. St. 2. p. 107.

Dr. Vetch has particularly recommended the undiluted liquor plumbi acetatis for checking the profuse discharge of matter from the eye, in this disease, aided by fomentations of nicotiana to the eye-lids at night. With a similar view, Mr. Briggs, in his translation of Scarpa's work, has recommended the introduction of a very minute quantity of the oleum terebinthinæ, between the eyelids; the eye being immediately afterwards immersed or bathed freely in cold water[1].

---

[1] It is safer perhaps in theory, and certainly more convenient and advantageous in practice, to consider the subject of purulent ophthalmia, under three distinct divisions, viz. purulent ophthalmy of infants (ophthalmia neonatorum), a second form more generally observed in schools, and the third, recorded as it existed in the army, and receiving its denomination from the campaign in Egypt. That the more severe cases of these divisions become closely approximated it is not meant to dispute.

In the purulent ophthalmy of infants, the existence of leucorrhœa, or other discharge in the mother, is of so general, if not constant occurrence, that in some instances, at least, it may not unfairly be considered in the relation of a cause. The assistance of the surgeon is in this complaint seldom or never requisite, till the profuse secretion of mucus, and the other characters described by the author, sufficiently indicate its nature. It would be then a waste of time to delay the immediate adoption of mild astringent injections. Of these the sulphates of alumine and copper are the most useful bases, in the proportion of three grains of the former, or half a grain of the latter, to an ounce of water. The frequency and strength of the lotion should be gradually increased. The external application of compresses moistened with cold water,

D. *Gonorrhœal Ophthalmia.* — *Ophthalmia Gonorrhoica.*

This is little else than a variety of the former ophthalmia, produced by the virus of gonorrhœa.

or the alum wash, is also of great utility. In cases of eversion of the lid, or other evidence of great congestion, a leech materially aids the mitigation of the disease, but the most formidable appearance of the malady should not deter us from the prompt employment of astringents and cold. I have constantly adopted this treatment with uniform advantage, of which the following case may furnish an exemplification. An infant of a few days old manifested the disease. Mercury, in some form, had been administered, and the eyes directed to be fomented for some days, when the case came under my own observation. Having with great difficulty procured a partial view of the corneæ, which were sunk in excessive chemosis, I found both to be opake, and the one collapsed from the discharge of the aqueous humour. The alum wash was alone applied internally and externally. In about eight or ten days the eyes had almost recovered their natural appearance, and the case was shortly cured, with no other injury to either organ than a partial adhesion of the iris in one eye. A very small point of ulceration of cornea, is a common attendant on protraction of the inflammatory action, and adds much more to the formidable character of the complaint, than to the eventual injury, if the treatment suggested be promptly adopted; the pupillary margin of the iris being rarely extensively implicated in the consequent prolapse.

The mild purulent ophthalmia of schools is best controlled by the ordinary treatment of simple inflammation, namely, the application of leeches, and the administration of purgatives during the acute stage, and the subsequent use of astringent collyria. In strumous, or otherwise cachectic patients, the cases are sometimes tedious, prone to relapse, and succeeded by chronic thickening of the conjunctiva of the lids, particularly of the lower lid. This membrane is thrown into thick and vascular folds, and exhibits a rough fungous surface. Mr. Travers has suggested that the granular appearance is not produced by actual granulation

Many surgeons, indeed, have denied the existence of such a form of ophthalmia *. I have never

* Among the number of these, I may notice Mr. Pearson, who remarks, " that during a pretty extensive experience of twenty-five years, he has never seen a single instance of inflammation of the eyes, which was evidently derived from a gonorrhœa; and that of the many thousand cases of gonorrhœa which had fallen under his notice, he never could, in any one instance, trace such a connexion between the eye and urethra, as has been asserted by many eminent writers." Vide *note, by Briggs, to the last edition of Scarpa.*

(p. 99). To the accuracy of Mr. Lloyd's account (in his work on Scrofula) of the ophthalmia of Christ's Hospital, my own attendance on the cases with and after him, enables me to bear testimony. The application of caustic and of leeches subsequently internally to the membrane or externally is found to be more advantageous than excision or scarification. The seclusion of those affected is necessary to prevent contagion. In the Welsh School, containing about 150 children, the propagation of the complaint was arrested by these means, and I had the satisfaction of limiting the disease to about twelve patients.

The acute purulent, or Egyptian, ophthalmy is fully and forcibly depicted by Dr. Vetch. The great severity of the disease can only be controlled by a corresponding decision of treatment. Venæsection to deliquium, cupping, the excitation of nausea, by internal exhibition of infusion of nicotiana, free exposure to cool air, and the application at night, of an infusion of tobacco (ʒij to half a pint of water) advantageous as astringent and anodyne, were the measures productive of most utility. The insertion, also, of undiluted liquor plumbi acetatis, is also strongly recommended.

The laws of morbid poisons are as yet but little understood. It is well, however, to recollect, that a greater or less degree of virulence (as may be inferred from the effects of vaccination and inoculation, and the experiments of Mr. Evans on the Venerola Vulgaris, (see Essay on Ulcerations of the Genitals, p. 70), will be often connected with the activity of the original disease at the period of contagion. A solution of some of the great variety in the poison of puriform contagious discharges, may be, perhaps, seen the disease myself, and it is one of very rare occurrence; but from the cases related by Swediaur, Beer, Scarpa, Vetch, and others, I have no doubt at all of its existence[1]. It differs, perhaps, in no material point from the ophthalmia we have just considered, excepting that its symptoms, in general, are much more violent, and its progress more rapid. Thus, the swelling of the conjunctiva, particularly that covering the globe, the pain of the eye, the intolerance of light, the purulent discharge over the cheeks, are all much more vehement than in the purulent eye, produced from other causes. All the authors above named, with the exception of Dr. Vetch, agree in supposing that the disease is generally induced by the sudden suppression of the gonorrhœal discharge from the urethra; arising from the use of too strong stimulant or astringent injections, from violent exercise, from the bathing of the parts in cold water, from bandages or compresses applied to the penis to prevent the discharge, from exposure to cold after the body has been preternaturally

---

traced to a similar cause. In syringing or examining purulent eyes, precautions should be taken by the operator to avoid any application of the matter to his own eyes. In the purulent ophthalmy of infants, the most destructive inflammation has sometimes resulted to the surgeon from neglect of this consideration.
EDITOR.

[1] I have known it to be the consequence of ablution of the eyes with the urine, during the existence of gonorrhœa. It has no connexion with the suppression of the original discharge. The metastatic inflammation of the eye is to be referred to the rheumatic or arthritic ophthalmiæ. ED.

heated, or from damp and cold feet, &c. Scarpa, it is true, in the last edition of his work, retracts the opinion mentioned in the former, " considering the metastasis of the gonorrhœa to the eye, as a mere chimera;" but Dr. Vetch has gone still further, and denies that the disease is ever communicated to the eyes from the gonorrhœal discharge of the same person. As decisive proof[1] of this, he adduces the case of an hospital assistant, who, with more faith than prudence, conveyed the matter of a gonorrhœa to his eyes, without any affection of the conjunctiva*.

Sometimes there is, alternating with this gonorrhœa and ophthalmia, a *rheumatic affection of the joints.* Sir Astley Cooper, in his lectures, mentions the case[2] of an American gentleman, whom he treated for gonorrhœa, who had, at the same time, a severe ophthalmia, accompanied with rheumatic affection of both knees. He remarks, that at the time he saw this case, he considered

* Vetch. op. cit. p. 243.

---

[1] This is far from decisive proof—the most careful vaccination will sometimes repeatedly fail. EDITOR.

[2] In this and the following case, by Mr. Abernethy, as well as in one recorded by Dr. Vetch, (p. 243.) there was every manifestation of a rheumatic or arthritic state of constitution. In all, the supposition that the discharge from the urethra was gonorrhœa must be held on very insecure grounds, as there exists no accurate diagnostic of the virulent and simple puriform inflammation of the urethra. Puriform discharge from the urethra is not an infrequent complaint in arthritic and rheumatic subjects, in the middle and latter periods of life. I have often seen it in married men,

the rheumatism and ophthalmia as a mere accidental circumstance; but, from having noticed similar cases since, he is convinced they have some real connexion with the gonorrhœa, and are often a consequence of it. Mr. Abernethy conceives this variety of the disease to be caused by too great irritability of the system, but more particularly of the mucous membranes, depending in general upon some deranged state of the digestive organs; hence, he terms it the *irritable* ophthalmia from clap. The following case he relates in his lectures, as corroborative of the correctness of his views and plan of treatment. "A gentleman, a sea-faring man of robust and strong habit, but of very irritable and fidgety constitution, applied to him with a gonorrhœa. He was to have left town a few days after, to join his squadron at Plymouth, but was detained in London by a violent ophthalmia, which immediately supervened upon the affection of his urethra. Mr. Abernethy advised him simply to bathe his eyes in a little

---

and under circumstances precluding all suspicion or possibility of infectious connexion. The attendant or succeeding ophthalmy in such cases (for it is not necessary that the inflammation of the urethra should be suspended, though generally mitigated) is sclerotitis essentially. (See on this subject Mr. Brodie on Diseases of the Joints, 2d edit. p. 64.) The necessity of distinguishing these diseases is of the utmost importance. Excessive general bleeding would but little relieve, and perhaps exasperate the rheumatic ophthalmy; whereas on venæsection to deliquium, with the prompt and active employment of mercury, we must rest our hope of rescuing vision in the gonorrhœal inflammation—a hope which even then will sometimes fail us. EDITOR.

poppy water, and keep his bowels gently open; recommended a light and moderate diet, with the blue pill. In three days after he had commenced upon this system, his eyes were considerably amended, and much less irritable to the light; but he now complained of a severe rheumatic pain of the shoulder. In two days more, the pain attacked both knees, and there was a sensation of effused fluid in the joints. A few days after, when Mr. Abernethy visited him, he found him sitting up in his chamber, with his windows thrown open, and completely relieved of all pain in the joints and eye, and with nothing remaining but the discharge from the urethra. Copious dark and bilious stools had come on in the course of the night; the biliary secretions were now corrected, and the patient was entirely cured. Mr. Abernethy remarks, that he has seen a great number of these cases, which have all yielded, in a very short time, to the same mild plan of treatment; in other instances, where he has known an opposite system pursued, where the patient has been plentifully bled, and purged, and blistered, he has seldom failed to have incurable opacities remain behind." Whether this species of ophthalmia, noticed by Messrs. Cooper and Abernethy as a frequent concomitant of gonorrhœa, be of the purulent or rheumatic kind; in other words, whether the inflammation was seated in the conjunctiva or sclerotica, we are at a loss to determine, as the symptoms in neither case are very strictly defined. No discharge from the lids is alluded to, and no more is said, than that the patients were attacked with severe pain and redness of the eye, and great intolerance of light; symptoms equally characteristic of both inflammations, and from which we can draw no positive conclusion. From the circumstance of its alternating with rheumatism, I am rather inclined to suppose it to have been rheumatic ophthalmia of the sclerotic coat; and I am warranted in this supposition, from some remarks of Dr. Vetch, on a similar disease which occurred to this gentleman. He says, "the inflammation of the eye appeared to have had its seat in the sclerotic coat; and on examining it more closely, I found an irregular and contracted pupil, with some opacity of the capsule of the lens, and adhesion between it and the iris; and on causing him to shut the sound eye, the vision of the left was found to be very much impaired. In neither eye was there any symptom of purulency or chemosis to indicate disease of the conjunctiva*[1]."

* Op. cit. p. 234.

---

[1] There is a third form of inflammation of the eye connected with gonorrhœa, which has perhaps not diminished the frequent confusion of the two former. This sometimes occurs with and after virulent gonorrhœa, and is an acute pseudo-syphilitic iritis, with the inflammation of conjunctiva, which generally attends the papular and pustular eruptions of the skin. There are, moreover, severe pains and inflammation of the larger joints. Editor.

Professor Beer has noticed several other species of conjunctivitis, as the variolous, morbillous, scarlatinous, erysipelatous, &c.; but as these are of extremely rare occurrence, and do not differ in any material respect from the forms already noticed, I shall pass them by without description.

The *cure* of these diseases is to be attempted on the general plan recommended under the head of purulent ophthalmia.

CHAPTER III.

RHEUMATIC OPHTHALMIA.

Ophthalmia Rheumatica.—Sclerotitis.

Some authors, and among the rest Professor Walther, have termed this species of ophthalmia the *arthritica.* The epithet *rheumatica,* given it by Beer, is perhaps the most appropriate, not only because the texture in which it is seated is analogous to that in which rheumatism is commonly found to have its seat, viz. the ligamentous and fibrous parts of the body, but because it is most generally known to alternate with, or succeed to rheumatic affections in other parts of the system, and is most prevalent in those seasons of the year, when rheumatism is most frequent.

The disease generally commences with a deep, lancinating, or acute pain of the orbit, now and then confined to the eye-brow, but most commonly extending over the whole of the side of the head which is affected[1]. This pain is rendered worse at night, when the patient is covered warmly in bed; and very often one or more of the joints are affected at the same time. Sometimes, general rheumatism or pains in the limbs have preceded the inflammation in the eye, which are mitigated, or cease entirely as soon as the disease is once firmly established in the latter organ. With the first sensation of pain in the eye, there will be found more or less redness of the sclerotica, epiphora, and intolerance of light. The redness is to be distinguished from that which takes place, when the conjunctiva is the seat of inflammation, from its being of a lively carmine or rose colour, from its being diffused over the whole sclerotica, and from its being more deeply situated[1]. There is a constant weeping of the eye, more particularly when it is subjected to sudden vicissitudes of temperature, or exposed to a damp and cold atmosphere. Hence this variety of ophthalmia has been termed by the older nosologists, the *ophthalmia humida*.

---

[1] In many of these cases, before the inflammatory action is established, I have derived the most gratifying advantage from the exhibition of ʒss. of muriate of ammonia, or ℈ij. of the subcarbonate of iron, every four hours, in a glass of water. Editor.

These symptoms, if not controlled by art, are every day increased. The redness of the eye becomes greater, extending itself to the vessels of the conjunctiva, which may be seen of a florid red colour, and covering the more delicate rose-like capillaries of the sclerotica. The pain is rendered more severe, affecting not only the cranium, but the whole head and face[1].

---

[1] There is no pale line of interval between the edge of the cornea and the zone of sclerotic vessels, where the sclerotitis is acute.
EDITOR.

The cornea, or rather the conjunctiva covering this tunic, participates in the inflammation. It is observed to lose its transparency, and assume a dull horny appearance. Small vesicles, or phlyctenulæ, form on various parts of this membrane, which bursting, pour forth their contents, and leave behind as many superficial ulcers, which seldom or never, however, extend deep into the cornea. If the constitution be otherwise healthy, they most commonly disappear with the other symptoms of redness, pain, &c., leaving in general little or no opacity, or any further trace of their having once existed, than some slight and almost imperceptible excavations or foveæ of the cornea, which, however, disappear altogether in the course of a very little time.

When the disease is permitted to run its course, the inflammation spreads to the iris, the vessels of the sclerotica are seen to take on the beautiful rose coloured zone peculiar to iritis, the iris loses its irritability and becomes sluggish, its colour is changed to a greenish hue. The pupil is irregular, angular, and contracted. There is effusion of coagulable lymph in the pupil, which considerably impairs the patient's vision, and small brownish condylomata are seen to arise at the same time upon the iris.

---

[1] Perhaps some forms of remittent ophthalmy are attached to the class now under consideration. An interesting practical case, attended with intense suffering, and relieved by large doses of opium, is related by Dr. Curry, who was himself the subject of it, in the Medical and Chirurgical Transactions, 3. p. 348. EDIT.

Sometimes the inflammation, instead of attacking the anterior hemisphere of the eye, is propagated to the more interior tunics, the choroid, retina, and hyaloid membranes. If the eye be now examined, a dark greenish opacity of a concave appearance, will be distinctly observable deep within the pupil, becoming daily more apparent, until it extends quite to the pupil. The vision is more or less impaired, or even entirely destroyed. If the disease be not arrested at this period, the vitreous humour enlarges, so that the volumen of the eye is considerably increased, and we have superadded to the opacity of the vitreous humour or *glaucoma,* hydrophthalmia.

The causes which produce inflammation of the sclerotica are, in general, the same as those which excite inflammation in other organs of the body. Most commonly the disease may be traced to sudden exposure to cold, after the body has been preternaturally heated. It is often preceded by pains in the limbs, or some general rheumatic affection; more frequently the pain and redness of the eye are the first symptoms of the disease, or it is ushered in by chill and fever. The disease generally makes its attack in one eye only, and the other is not affected until the inflammation has made some progress, or entirely exhausted itself in the first. At other times, both eyes are attacked simultaneously, and the disease advances equally in both[1].

Cure. When the disease is violent, accompanied with a tense and hard pulse, it will be necessary in the first stage to have recourse to venæsection. This may be aided by cupping, or leeches applied to the temples. The division or opening of the temporal artery, as uniting the advantages of local with general depletion, has been highly recommended in this species of ophthalmia; but is now very generally abandoned, as it is constantly followed by an aggravation of the disease. Dr. Vetch has very satisfactorily accounted for this in the power which arteries possess of rapidly accommodating themselves to the exigency of the part which they supply *.

As this ophthalmia is, in general, accompanied with some affection of the stomach, or alimentary canal, it is advisable in most cases to follow the bleeding by an emetic, or to empty the bowels by some active cathartic. To these should succeed the employment of antimonials, given in small quantities, so as to keep up a constant nausea, and determine towards the skin. They are more especially advantageous where the dis-

* Op. citat. p. 39.

---

[1] For cases and observations relating to the ophthalmiæ, preceded by discharge from the urethra, see Note 2. p. 53. on Gonorrhœal Ophthalmia. EDITOR.

ease has originated from exposure to cold, or where the functions of the skin have been suddenly suppressed[1].

Mr. Wardrop * has used, with considerable advantage, small doses of bark, in rheumatic ophthalmia, and considers it to possess as specific an effect in this disease as in ague. The practice, from the greater violence of inflammatory affections in this country, is scarcely admissible.

The pain in this disease is best alleviated by blisters applied behind the ears, or to the nape of the neck; warm fomentations of poppy heads, hyosciamus, &c., contribute to the same effect. Where the pain is extremely violent, and accompanied with a sensation of tension or constriction of the globe, relief is frequently obtained by evacuating the aqueous humour, in the manner proposed by Mr. Wardrop.

Unctuous or fluid applications to the eye are seldom of much benefit, excepting in the latter stage of the inflammation. The most useful of these are the vinous tincture of opium, or Sydenham's tincture, streaked once or twice daily, by means of a delicate camel-hair pencil into the eye.

* *Medico-Chirurgical Transactions*, vol. x. p.

---

[1] Mr. Brodie suggests the use of colchicum as advantageous in the cases which attend or succeed to puriform inflammation of the urethra, with rheumatism of the joints. Sometimes the state of constitution is brought on by drinking light wines, cider, or hard beer. The presence of acidity in the stomach is always worthy attention in gouty and rheumatic subjects. Decoction of sarsaparilla in lime water, is a valuable medicine in some of these cases.

EDITOR.

CHAPTER IV.

INFLAMMATION OF THE IRIS.

Iritis.

THIS species of inflammation, though of very frequent occurrence, has not been described until very lately. This is the more remarkable, as there is no disease of the eye, which has a more immediate or rapid tendency to destroy vision, when left to the simple powers of nature, and few over which the exertion of art has a more decided and beneficial control.

Inflammation of the iris may occur from various external causes, or it may have its origin in some peculiar diathesis of the whole system. Thus we see iritis of a very peculiar and distinct character produced by constitutional syphilis—another variety we find attendant upon gouty constitutions only. Sometimes we find the disease propagated from other textures or membranes of the eye.

From this variety in the origin of the disease, it is not at all surprizing to find it assume different features, characteristic of the particular kind of inflammatory process going on at the time in the iris; and though the general character of the disease remains the same, there are a number of minute shades and differences, sufficiently constant to justify a classification of these into several varieties or species.

A. *Idiopathic Inflammation of the Iris.—Iritis Idiopathica.*

This commences with an obtuse, deep seated pain in the eye, causing a sensation as if the bulb were constantly pressed upon from without; the pupil, at the same time, is seen to be contracted; still, however, maintaining its circular form and central position in the eye; the motions of the iris are less free, and the eye is more sensible to light. The iris is next observed to change its colour, becoming sometimes of a reddish, but more commonly of a greenish hue. More frequently, this change is confined to a small segment of this membrane; sometimes the inner ring alone is affected, whilst the outer preserves its natural appearance. As soon as this alteration of colour affects the outer circle, the iris swells, its margin becomes puckered, loses its acuteness, and appears as turned back towards the posterior chamber.

With the contraction and immobility of the iris, there is always more or less indistinctness of vision, caused from the inflammation having spread to the adjacent parts, or the effusion of coagulating lymph into the pupil. The pain becomes more violent, extending even to the brain, and the slightest motion of the head is sufficient to excite the most severe paroxysm. The redness of the eye is very inconsiderable, and bears no proportion at all to the vehemence of the other symptoms.

The inflammation may extend itself to the ciliary ligament and processes, the capsule of the lens, the membrane of the vitreous humour, in short, upon all the parts adjacent to the iris, and the general fever which always accompanies in some degree this disease, is just in proportion to the extent and importance of the parts so affected. The redness of the sclerotica is now more apparent; its vessels are deeply injected, forming innumerable anastomoses round the cornea, and giving rise to that beautiful rose coloured zone we witness in this species of inflammation. The vessels appear of a sudden to leave the sclerotica, to penetrate directly into the eye, without passing to the cornea, as in common cases of ophthalmia. Many rely upon this peculiar zone of vessels as characteristic of inflammation of the iris, but the same appearance is frequently observed in the strumous ophthalmia.

The pupil, which in the commencement was circular, now becomes irregular and angular. Examined with a microscope, a delicate flake of coagulating lymph, or a grey ash coloured membrane is seen to come forward from the iris, gradually filling up the pupil. More commonly, this effusion takes place in one or more small patches on the margin of the iris, or as Mr. Travers observes, "the whole ring of the pupil is fantastically fringed or tuffed." Vessels shoot into this lymph, the mass becomes organized, and the iris, if the disease be not timely arrested, adheres firmly to the capsule of the lens. *(Synechia posterior.)* It is to these changes, that we are to attribute the dimness of vision in this stage of the complaint, which increases daily if not checked, terminating at length in complete blindness.

Whilst these changes are taking place in the posterior chamber, phenomena not less remarkable are developed in the anterior. The iris projects more and more towards the cornea ; a small orange coloured tubercle now forms upon its surface, which gradually enlarging, is seen to contain a quantity of purulent fluid. It finally bursts, and pours forth its contents into the anterior chamber, giving rise to the disease termed *hypopion*. If more than one of these tubercles be present, the whole of the anterior chamber may be filled with pus, so that the iris is completely obscured *.

---

* Many pathologists, and among the number Dr. Farre and Mr. Travers, have supposed the iris incapable of taking on the suppurative state of inflammation, and account for this appearance

When the cornea has been at the same time attacked, it thickens and becomes cloudy, and the iris projecting in the same manner towards the cornea, the two inflamed surfaces are brought into contact and unite.

B. *Syphilitic Inflammation of the Iris.—Iritis Syphilitica.*

The first symptom we have of this affection is a pale redness of the sclerotica, but which in a short time extends to the conjunctiva. The cornea is equally and uniformly obscured, the iris is less irritable, the pupil contracted, and no longer occupies its central position, but is drawn inward and upward towards the root of the nose. It loses its circular form, and becomes more or less angular. As in the other species of iritis, the iris swells, and losing its natural colour changes to a reddish hue.

All these changes in the state of the iris are

---

of pus in iritis, from its being accompanied with ulcers upon the cornea, opening internally. Others have termed this a spurious hypopion, and suppose it to consist of effused coagulated lymph. It is very probable that the different terminations of iritis, in adhesion or suppuration, depend upon the different tissues of the iris that are affected. Thus, if the inflammation be confined to the serous membrane, covering the proper substance of the iris, coagulating lymph is effused; if, on the other hand, the cellular texture, or the substance of the iris, be the part primarily attacked, we have abscess and suppuration.

accompanied with more or less intolerance of light with painful irritability of the whole eye, and with a considerable degree of epiphora. The patient complains of a severe lancinating pain in the eye-brow, darting into the socket of the eye and brain. This commonly comes on towards evening, continues to increase till midnight, then gradually abates, until about four or five in the morning, when it entirely ceases.

After each of these nightly attacks, the pupil is found more and more contracted, and drawn further towards the inner canthus, the iris more altered in form and colour, and the quantity of coagulating lymph effused from the iris, increased. This lymph becomes organized, so that with a delicate microscope, and often indeed with the naked eye, small vessels may be seen, like slender brownish fibres, or in the form of a membranous web, stretching from the pupillary margin of the iris to the capsule of the lens.

Where the disease is permitted to run its course uncontrolled, here will be seen to arise from the border of the iris, small reddish warts or tubercles, having a spongy appearance; and when examined by the microscope, are found to bear a great analogy in structure to those condylomata, termed *crista galli*, which commonly make their appearance upon the anus or perineum. These condylomata increase very rapidly in size, so as to fill up the anterior chamber, and press backward the iris. Lardy looking ulcers appear sometimes upon the cornea, sclerotica, or even the integuments of the eye-lids[1].

C. *Gouty Inflammation of the Eye.—Iritis Arthritica.*

The arthritic inflammation, so strikingly resembles the syphilitic, that the two diseases are often confounded, and when they co-exist, as they sometimes do, in the same individual, the diagnosis is rendered extremely difficult.

---

[1] The real syphilitic iritis which occasionally succeeds to indurated sores of the genitals, is ordinarily characterized like the primary malady, by indolent but progressive action. The redness of the sclerotica soon assumes the appearance of a deep and dull crimson zone—the tint is sometimes even of a tawney brownish red: there exists no pale interval or circle between it and the cornea when fully established.

The dull obscurity of the cornea is also partly increased by a turbid state of the aqueous humour, and the inflammatory state of the secreting membrane, to which the diseased action is propagated from the iris. More frequently, the inflammatory state of the lining membrane is distinctly visible at the bottom of the anterior chamber. In general, one eye only is first attacked. The intolerance of light may be very trivial, and the patient sometimes remain unaware of a very impaired state of vision, until he is directed to close the sound eye. When the diseased actions are permitted to proceed, the lymph thrown out on the iris becomes organized, so as to exhibit red vessels, after which, no remedy can effect a complete re-absorption of the new matter. In cases long neglected, there will be sometimes seen at the margin of the cornea, (and ordinarily on the temporal side of the eye) an elevated nodule of a deep brown colour, beneath the conjunctiva. The appearance

This species of inflammation is generally preceded by some unusual sensation about the eye, or its vicinity, as the creeping of insects, or a peculiar tingling about the orbit, which is followed by a violent racking pain in the organ, darting towards the temples, and cheeks. A discharge of acrid pungent tears take place from the eye, whenever the lids are separated. The sclerotica appears of a rose-red, particularly around the cornea, forming a similar zone of vessels to that described under the head of syphilitic iritis. In this, however, the inflammation is not propagated to the very margin of the cornea, as in the other varieties, but leaves immediately around its edge a narrow bluish ring, which becomes more perceptible with the increasing vascularity of the conjunctiva[1]. This ring, and the subsequent ten-

---

at once suggests the idea of a prolapse of the choroid at the ciliary ligament, through a triangular fissure of the sclerotica. Whether the sclerotica be merely detached, or its own fibres actually separated, I have not been able to ascertain by examination. I have seen the plane of the iris distinctly drawn back in this accident.

In a note on gonorrhœal ophthalmy, I have adverted to the more frequent and acute form of iritis, attendant on the pseudo-syphilitic state of constitution. The diagnosis is of little practical importance with reference to the present subject. EDITOR.

[1] On the subject of this narrow bluish ring, the reader will find some collective and useful observations in Cooper's Surgical Dictionary, ed. 5. p. 929. Mr. Wardrop, in his Observations on Rheumatic Ophthalmy, Medico-Chirurgical Transactions, Vol. X., describes the vessels as "advancing close to the cornea, but neither passing over it, nor leaving the pale circle around it, which is so striking when either the choroid coat or iris is inflamed." This pale circle I have remarked repeatedly to be absent in the syphi-

dency to varicosity in the vessels of the conjunctiva, are characteristic features of arthritic iritis, and serve to distinguish it from the syphilitic. The pain is inconstant, and increased by every change of temperature, and particularly by the warmth of a bed.

The changes which take place in the iris differ according as the disease attacks persons of a meagre irritable habit, or as it appears in individuals of a gross constitution, with lax fibre, and little irritability. In the first class of patients, the iris becomes expanded and immovable, loses its colour first in the less, then in the greater ring; the pupil is rendered angular or irregular, contracts more and more after each attack of pain, and is traversed by a number of minute fibres, which consist of coagulating lymph effused from the iris. A perfect web is formed throughout the pupil, and the vision is completely destroyed. The disease never reaches this grade without being accompanied with general fever; and if left to itself, the eye becomes atrophic, and retracts within the orbit.

---

litic inflammation of the iris and choroid, when established. It is, however, apparent on the diminution of the vascularity of the sclerotica by mercurial action, in proportion as the extent of inflammation at the point of communication between the choroidal and conjunctival vessels around the cornea, is limited to the denser part of the zone, which is only more diffused in the active state of the disease. The slighter degree of sclerotitis, existing with the arthritic iritis, in the same manner may solve the nature of the pale interval at the edge of the cornea. EDITOR.

In the second order of patients, these symptoms are somewhat modified. The iris is more contracted, the pupil is not dilated uniformly, but acquires an oval or oblong shape. The pupillary margin of the iris projects backwards towards the lens, so that nothing of the smaller circle of this membrane is perceptible. The pains now increase, and the vitreous humour becomes affected, presenting a greyish green appearance, or opacity at the bottom of the eye. The lens is soon affected in like manner, exhibits a sea-green colour, swells, and appears to project forward into the anterior chamber, giving rise to the *cataracta viridis,* or is better denominated by Professor Beer, *cataracta glaucomatosa.* During these changes, the attacks of pain are rendered more violent and continued, and the varicose state of the eye increases. The cornea having lost its lustre, appears as if completely dead; and the vision is totally destroyed.

The exciting causes of iritis are not as yet completely ascertained. In general, it is seen to follow wounds of the iris, or any violence inflicted upon this membrane: hence, it is a frequent consequence of the operation for cataract. It is likewise a common sequela of the operation for artificial pupil, especially in that species where the iris is torn from its attachment with the ciliary ligament, *(Koretodialysis).*

Exposure to a cold or moist atmosphere will frequently induce an attack of iritis; more especially when the constitution has been previously debilitated by rheumatism, gout, or by long confinement under a mercurial course. Close and strenuous employment of the eyes, after recovery from any other species of ophthalmia, may be accounted an exciting cause of iritis.

TREATMENT.

In the treatment of these several species of iritis, we are governed by the same general principles, which regulate the treatment of inflammation in other parts of the system; and the importance of the organ affected, and the rapid progress of the disease requires the greatest vigilance and decision on the part of the practitioner. In the *idiopathic iritis,* which most commonly attacks the robust and full blooded, immediate recourse should be had to a full and free bleeding, which may be repeated again in a day or two, if the inflammation continues violent, or the symptoms of general fever are not moderated. This should be followed by the exhibition of a brisk and active cathartic, repeated as occasion may require, and small doses of tartarized antimony, so as to keep up a constant state of nausea. In this manner the disease is often immediately arrested. If, notwithstanding the free use of the lancet, the symptoms still continue violent, local bleeding may be substituted for the general; cupping-glasses to the temples will, in general, prove more beneficial than leeches. Blisters to the back of the ear, or nape of the neck, are seldom found to answer any useful purpose in iritis, as in the other species of ophthalmia. The violence of the pain is often mitigated by fomentations of the eye with water, as hot as the patient can bear them; or what is preferable, a strong infusion of poppy water.

Our next object in the treatment of iritis should be the removal of the effused lymph behind the pupil; and this is best effected by the different preparations of mercury. Calomel, combined with opium, or the Dover's powder, is, perhaps, the best form in which it can be administered. Frictions to the eye-brow, with a little mercurial ointment and opium, seem to contribute to the same effect[1].

Another and very important indication in the treatment of this affection, is to prevent the contraction of the iris, and its consequent union in this state to the capsule of the lens. This is best answered, by dropping into the eye, once or twice daily, a weak solution of the extract of belladonna, or hyosciamus, or by rubbing upon the eye-lids and brow a small quantity of the same extract, thinned to the consistency of cream. Professor Beer censures very much the indiscriminate employment of these narcotics to the eye, and thinks them only admissible after the symptoms of inflammation have been in a great measure subdued. He supposes they have a strong tendency, not only to weaken the powers of the retina, but of the iris itself. Such effects have, no doubt, been known to follow the employment of these substances, but it is only when the remedy has been carried to great excess; where they are judiciously and properly applied, there can be no objection to their use. How these act in producing this dilatation of the pupil, is not sufficiently made out. Mr. Saunders* is of opinion, that they have some " specific influence in exciting a contraction of the radiated fibres of the iris." It is more reasonable, perhaps, to suppose, that they operate by inducing a state of palsy in the nerves to which they are immediately applied; which state is communicated by sympathy to those nerves, likewise, which supply the iris. A similar state of dilatation and paralysis of this membrane, is a constant attendant upon pressure of the brain, as we see manifested in hydrocephalus; or the same effect may be perceived in the last moments of expiring life [1].

---

[1] Mercury is sometimes less efficacious in simple inflammation of the iris, especially in cases of relapse, after or during its employment. EDITOR.

* *A Treatise on some Practical Points relating to Diseases of the Eye*, p. 68.

---

[1] Belladonna has a marked influence in diminishing the disten-

As to the treatment of *syphilitic iritis,* it is evident that we cannot expect any radical cure of the disease, as long as there is any taint in the system of the constitutional affection; for the slightest exposure to the causes enumerated, must excite a recurrence of the complaint. The great danger in this species of inflammation arises from the lymphatic effusion in the pupil and the contraction of the iris, which follow those nightly attacks of pain, so peculiar to this disease. The

---

tion of vessels in catarrhal and other superficial ophthalmiæ, beyond the agency of ordinary stimulants. I am inclined to refer its power over the iris to its stimulant effect on the contractility (whether muscular or sui generis) of the radiated fibres. The supposed paralysis of the iris in hydrocephalus, or approaching death, is, perhaps, questionable, as far as regards the radiated fibres. In real paralysis of the iris, this membrane has seemed to me to hang or float forward towards the cornea, so as to diminish by its approximation the anterior chambers. Many evidences of the stimulant power of belladonna might be here adduced, but there are too many perplexing facts relative to the function of the iris to be discussed in a note. The reader may refer, on this subject, to Mr. Travers' Synopsis, p. 63, and to a paper on Partial Paralysis, by Mr. Shaw, Med. Chir. Trans. 12. p. 105. Where the pupil has become much contracted, or the iris evinces by its irregularity, or thickening of the pupillar margin, the probability of adhesion, the application of belladonna is desirable even before the inflammatory action is subdued, especially in syphilitic iritis, inasmuch as it will act on the pupil at the earliest period of the mitigation of the disease, and much diminish the risk of permanent irregularity, contraction or obliteration. The dilatation of the pupil by the belladonna affords us often the first, and consequently useful information of the mercurial influence on the inflammation, especially where we are using mercury very largely. The addition of a drachm of the extract to a pint of poppy fomentation, affords a valuable external application. EDITOR.

most effectual mode of arresting these symptoms, is to direct the patient to rub into the eye-brows each night, and a short time before the pain is expected to come on, a small quantity of mercurial ointment, united with a portion of finely powdered opium[1]. If the pain be not allayed by the first rubbing in of the ointment, it may be repeated every fifteen minutes, or half hour. I have known as many as ten or a dozen frictions in a night; most commonly two or three suffice. In the first stage of the disease, nothing more should be applied to the eye than a warm fold or compress of linen; it is only in the second stage that recourse should be had to fluid or astringent applications. Of these, a weak solution of corrosive sublimate, with mucilage and opium, the red precipitate ointment, and where foul looking ulcers are present upon the cornea, a solution of the lapis divinus will be found most beneficial.

The *constitutional* treatment of this disease is regulated by the same principles which guide us in the practice of other venereal affections. Calomel, perhaps, is the best preparation of mercury we can apply in iritis[2]. I have seldom seen a case in which it failed to cure. As soon as the mercurial action is excited, or a fœtor is discovered in the breath, the most favourable changes will also be observed to take place in the condition of the eye. The zone of vessels surrounding the cornea becomes of a paler red, the cornea regains its transparency, the quantity of lymph effused into the posterior chamber is diminished, and the vision hourly improves. The peculiar idiosyncrasy of some persons, in whom the mercury produces tormina and griping, will sometimes prevent its free exhibition. These effects may be obviated, in some measure, by giving, on alternate days, small doses of any laxative medicines, as the sulphate of magnesia, &c. Where the disease attacks persons previously debilitated by the free use of ardent spirits, the use or abuse of mercury, by age, or where it is combined with scrofula, it most generally proves destructive to the vision, as the strength of such patients is not sufficient to withstand the action of our remedy. These cases are most difficult to manage, and usually terminate in complete amaurosis [1].

---

[1] The agonizing pain, when characterized by a sensation of throbbing, will yield to one bleeding to deliquium. This measure is of the first importance in severe syphilitic iritis, not only as affording temporary relief, but as calculated to expedite the action of mercury. EDITOR.

[2] In doses of three grains, to three of pulv. ipec. comp. four times a-day. Too large a proportion of opium is prejudicial from its influence on the circulation of the head. ED.

The cure of *arthritic iritis,* like that of gout, is a subject still of much obscurity. It is seldom necessary in this species of ophthalmia, to have recourse to general bleeding, as in the idiopathic iritis, the application of a few leeches to the eye being, in general, sufficient. To prevent the nightly attacks of pain, frictions of mercurial ointment and opium, or of this latter substance, with the saliva, should be employed to the brow, and the warm aromatic compress worn through the day. The vinum colchici has been resorted to with a similar view, and found very beneficial in several cases; but the virtues of this remedy remain to be tested by further observation.

---

[1] There will be found more risk of irremediable mischief from irregular or indecisive exhibition of mercury in the first treatment. EDITOR.

The preparations of mercury are seldom of much efficacy in arthritic iritis; most commonly they are found to increase the pain and febrile irritation. Blisters behind the ears, or to the nape of the neck, or frictions, with the tartar emetic ointment, should never be neglected.

CHAPTER V.

Internal Ophthalmia.—Ophthalmitis Interna.

This disease most generally comes on so insidiously, that it is entirely overlooked by the patient or surgeon, until the vision is very much impaired, or completely destroyed. In many cases, indeed, its nature is not fully understood—and it is mistaken, and treated for a mere hemicrania, or rheumatic affection of the head. The pain is always the most predominant symptom. This is commonly seated deep within the orbit, extending to the forehead and one side of the head, and is most intense at night. The vision is much affected, growing worse from day to day. There is little or no redness in the commencement; and this, no doubt, has led the inexperienced and inattentive surgeon to the error just mentioned. If the eye be more minutely examined, the pupil will be found to have lost its black shining lustre; it is more contracted than in its natural state, but preserves its circular shape and central position in the iris; sometimes it is totally obliterated. The iris, at the same time, loses its colour, and becomes of a greenish or brownish cast; the vision is much impaired, or quite destroyed. If the disease have continued for some length of time, or advances with more than usual rapidity, the sclerotica and conjunctiva participate in the affection; and the same delicate rose-coloured zone of vessels, which marks the existence of iritic inflammation, is now perceptible upon the sclerotica. In the more violent grade of the disease, the constitution is much disturbed, the patient complains of a sensation of coldness creeping along the back, matter forms in the eye, and fills up the anterior chamber, giving rise to an hypopion; or general inflammation and suppuration supervene.

The disease is, fortunately, of very rare occurrence, and seldom assumes so violent a grade. When the surgeon is called in time to see the patient, before the pupil is much contracted, or the vision considerably impaired, he may hope, by vigorous and active treatment, not only to check its further progress, but to restore the organ to its full and healthy functions. Where the vision is completely destroyed, or the pupil quite obliterated, there can be little hope, by any remedies, of improving the sight; and our attention should be chiefly directed to subduing the inflammation, or prevent its running into the suppurative stage.

The *treatment* of this species of ophthalmitis, does not differ materially from that of iritic inflammation. It is merely necessary to apply the same remedies with a little more vigour. Where matter is effused into the anterior chamber, it is seldom necessary to puncture the cornea, with a view to its discharge. A strict adherence to the antiphlogistic plan, an occasional purgative, a blister to the temples or behind the ears, and anointing the eye once or oftener through the day with Ware's tincture, will, in general, cause its absorption.

PART II.

OF THE DISEASES

WHICH ATTACK

THE INDIVIDUAL TEXTURES OF THE EYE.

CHAPTER I.

OF THE DISEASES OF THE CONJUNCTIVA.

Pterygium.—Winged Film.

THIS disease, which is termed in popular language (in common with opacity,) a film of the eye, consists in a preternatural swelling of the conjunctiva, covering the sclerotica. Its figure is uniformly pyramidal or triangular, having its base towards the periphery of the eye, whilst its apex stretches towards the cornea. Most commonly it reaches no farther than the line of union of the cornea and sclerotica; in other instances it extends even to the centre of the former, so as to impede considerably the function of vision. The disease most frequently originates from the internal angle of the eye; and it was this circumstance, which induced the belief, among the older writers, of its being a mere expansion, or growth from the membrana semilunaris, or caruncula lachrymalis. It is sometimes seen to proceed from the external canthus; and, in some cases, from the superior or inferior hemispheres of the eyeball. Where two or more pterygia are seated upon the same eye, the cornea is more or less obscured, and the vision, of course, considerably interrupted, if not entirely destroyed.

The disease has been divided into two species, the pterygium *tenue*, and the pterygium *crassum*. The first consists in a thin film, or web-like semitransparent expansion, of a dull white colour, having a few straight, long, and isolated vessels, which run along its surface, and converge towards the cornea. The second, which is of a much more formidable character, appears elevated from the sclerotica, in the form of a thick fleshy membrane; and, approaching the cornea, terminates either at the margin or centre of this tunic, by a sort of tongue-shaped extremity. Some writers have confounded this species of the disease with the pannus, an entirely distinct affection.

The disease most commonly appears, and runs its course without the slightest pain; and hence it is, that persons are frequently affected for a long time with the complaint, without their knowledge, until they accidentally discover it in looking into a glass, or their attention is excited to it by the notice of some of their friends or relatives.

Pterygium has generally been considered as a common sequela of inflammation of the eye; and this has arisen, no doubt, from the surgeon's not having properly distinguished this disease from that relaxed, or fungous state of conjunctiva, which so often follows certain kinds of ophthalmia; more especially where these have been long neglected or improperly treated. This relaxation of the conjunctiva seldom, or never, terminates in pterygium, unless the other exciting causes of the disease are brought to act upon the eye. That pterygium is occasioned principally by causes operating externally, may be deduced from the circumstance of its being most commonly seated in the internal angle, which is exactly that part of the organ most exposed to the action of external agents.

The *cure* of pterygium may be attempted, either by topical applications, assisted by repeated scarification, or by excision of the diseased part[1]. The first of these methods, however, is only practicable in the thin or membranous species, and is at best a slow and tedious method of proceeding. The operation of excision being perfectly simple, easy and effectual, deserves in all instances the preference.

---

[1] It should be recollected that pterygium may be a stationary disease, and that excision or other treatment may be superfluous or prejudicial where there is no inconvenience to vision. EDITOR.

The lids being separated as widely as possible by an assistant, the surgeon seizes, with a pair of forceps, the pterygium near its basis, lifts it from the sclerotica, and divides it fully with a sharp scalpel. The rest of the operation, or the separation of the pterygium from the sclerotica and cornea, is best completed by a pair of curved scissors. Care should be taken to remove the whole of the disease. The inflammation which succeeds is, in general, very slight; and any portion of the pterygium, which may have escaped the scissors, is thrown off by the suppurative action, which is kept up by means of the laud. liquid. Sydenham, or other stimulants applied to the eye.

Scarpa advises merely the partial removal of the pterygium, which is performed by a semicircular incision, concentric to the margin of the cornea, and midway between this and the base of the pterygium. His objection to the practice of complete excision is, that the ball of the eye is divided to too great an extent; and secondly, the deposit of lymph in the site of the cicatrix, forming an elevated ridge, which, like a small cord or frenum, confines the ball to the caruncula, and thus prevents the abduction of the eye. The fact is well founded, upon which this objection is raised; and as a general rule, perhaps, the partial removal of the pterygium from the margin, is preferable to excision of the whole[1].

Tumours or Excrescences of the Conjunctiva.—Lipoma Conjunctivæ.

The conjunctiva, or rather cellular tissue connecting this membrane with the sclerotica, is liable to tumours or growths of various kinds. The former are either of an adipose, steatomatous, or cartilaginous nature. Sometimes they are accompanied by a morbid growth of hairs from the part. Most commonly, these tumours appear on some part of the sclerotic conjunctiva; at other times, they are connected with the eyelids; they are rarely seen upon the cornea itself.

Preternatural folds or *excrescences* frequently take place in the conjunctiva, in consequence of the relaxation of the cellular tissue, by which it is connected with the sclerotic coat. They are generally the effects of purulent ophthalmia, and are most frequently found among the inhabitants of warm climates. They consist of mere reduplications of the conjunctiva, and possess a dull white colour. When they attain to any size, the motions of the eye will be considerably impeded; sometimes they are seen to overlap the cornea, when the eye is moved in a lateral direction, or to fall in folds over the lids when these are everted.

---

[1] Mr. Travers is of opinion that it is inadmissible to interfere with any portion of the pterygium that may have encroached upon the cornea. He confirms Scarpa's objection relative to the impeded abduction of the eye succeeding too extensive excision.
EDITOR.

The treatment of all these different states of the conjunctiva, consists in the simple excision of the diseased part. Whilst the lids are separated by an assistant, the surgeon, raising the projecting portion with a pair of forceps, removes it, at a single stroke, with a common lancet-shaped knife, or the curved scissors. Where there is any tendency in the disease to form anew, the divided surface may be rubbed slightly over with the sulphate of copper or lunar caustic.

CHAPTER II.

OF THE DISEASES OF THE CORNEA.

Opacities and Specks of the Cornea.—Nebula et Maculæ Corneæ.

Opacity, or nebula of the cornea, consists in the deposition of lymph into the cellular substance, which connects together its lamellæ; often, indeed, it is produced by the more condensed state, or increased secretion of the natural halitus, which is found to fill this delicate structure. If the inflammation causing such deposition has been more violent, the effusion is rendered proportionably dense, and a species of pseudo-membrane is formed, in lieu of the cellular net-work; or this structure is entirely destroyed and absorbed, and the lamellæ are brought into intimate and direct union with each other. In these cases, the texture of the parts is sometimes totally altered, without being followed by any breach of substance. Examples of a similar kind are met with in other structures of the body, as in the pleura, which is sometimes converted into bone, without the least ulceration.

Opacities, or specks of the cornea, may be divided into several kinds or species. Those which are caused by the altered or more condensed state of the inter-lamellar secretion, are denominated by Beer, *Macula corneæ simplex, obscuratio* *; those depending upon the formation of a pseudo-membrane, are more appropriately termed *leucoma;* the third variety, or that in which the lamellæ are firmly united with each other, or the conjunctiva, he has termed *albugo*, or *cicatrix.*

The first of these, or simple opacity of the cornea, is recognized by a diffused cloudiness of the whole or part of the cornea; it has no distinct or circumscribed boundary, but gradually loses itself in the transparent part of the tunic. The opacity, for this reason, appears always greater in its centre, declining steadily towards its circumference. It seldom attacks the deeper lamellæ, but is seated most commonly directly beneath the conjunctiva, as may be seen by examining the eye laterally with a magnifying glass. The obscurity of the cornea in this species of opacity, is never so great as to conceal the pupil or iris; and the vision on this account is never totally destroyed, but only rendered less clear and distinct.

In *leucoma* the opacity is more circumscribed, and of a whitish, chalky, or pearl colour. If it be deeply seated, it will assume a polished or shining lustre; if more superficial, or beneath the conjunctiva, the colour is more dull. In both cases, there is a considerable degree of nebula surrounding the opacity. Where the disease occupies the centre of the cornea, so as to obstruct the entrance of the rays of light into the pupil, the patient is rendered completely blind. Sometimes one half of the pupil only is obscured, and the patient still enjoys very tolerable sight through the diaphanous portion; the sphere of vision is simply contracted. He will always see better in the twilight, or in an obscure chamber, than in the broad glare of day, because the pupil being expanded, permits a greater number of rays to reach the retina.

---

* Other synonyms are, *nebula, nephelium, nubecula,* &c.

The *cicatrix* differs no less in form and colour from the two other varieties, than in the cause which has produced it. Being always the consequence of wound or ulcer of the cornea, its form is infinitely varied. Not unfrequently the iris will be found united with the cornea at the point of the cicatrix, so that the pupil is considerably distorted or drawn from its natural position. The cornea is sometimes seen completely studded over with these cicatrices, so that it has lost in a great measure, or altogether, its transparency and convexity. This form of the disease Professor Beer has very justly styled *phthisis corneæ*.

Opacities or specks of the cornea may always be traced to previous inflammation of this tunic. Those varieties of ophthalmia, which are connected with some peculiar diathesis of system, are most disposed to terminate in this way. Any accidental or artificial wound of the cornea will cause a nebulous or leucomatous cicatrix; especially if the wound has been allowed to suppurate, as in the lacerated, ragged wounds of this tunic, or where foreign bodies are permitted to remain, until suppuration is excited for their discharge. Like cicatrices of other parts, they are always considerably smaller than the ulcers of which they are the vestiges.

Opacity of the cornea is often caused by the contact of acrid or strongly corroding substances with the eye; as the different species of acids, lime, &c. The opacity under these circumstances takes place instantaneously, and the natural texture of the cornea is completely destroyed.

There is, perhaps, no disease of the eye, for which a greater variety of remedies has been recommended, than that of opacity; and this has proceeded in a great measure, from the obstinacy, and incurable nature of many cases of the complaint. There is no single application indeed, however beneficial, which does not by long employment lose its power, hence results the necessity of frequently alternating our remedies, or varying their forms, to suit the particular circumstances of the case. Where the opacity is recent, or of the kind denominated nebulous, where it occurs in young, healthy individuals, it readily yields to slight stimulating collyria, as a solution of the argentum nitratum, or the oxymuriate of mercury, one to two grains to the ounce of water[1]. Where the disease, on the contrary, takes place in old cachectic constitutions, and is of long standing, or partakes of a dull white or pearl colour, it will be necessary to resort to more powerful applications, or different stimulating ointments*. These should be applied by means of a camel-hair pencil to the opake spot only, otherwise they may increase the disease. Care should be taken that they do not excite any permanent inflammation,

* The following are some of the formulæ recommended by writers on this subject:—

℞. Sal. Corn. Cervi. gr. xij.
Fell. Taur. Dr. j.
Mel. Despum. Dr. iij.
M. exactissime. *Richter*.

℞. Liquor. Ammon. caust. gtts. x.
Olei. Nuc. Jugland. Unc. semis. M.
Graefe.

℞. Butyr. recent. insuls. Dr. ij.
Mercur. precip. rubr. gr. xv.
Tutiæ. pptæ. gr. vj.
M. exactissime. *Beer*.

℞. Butyr. recent. insuls. } aa. Dr. j. M. ut.
Ceræ. flavæ. } ft. Unguentum.
Mercur. prec. rub. }
Ibid.

℞. Mercur. sublim. corros. gr. j.
Opii. colat. gr. viij. solve in
Aq. Rosar Unc. ij. *Ibid*.

---

[1] Two grains of argent nitr. or half a grain of the oxymuriate of mercury, to an ounce of water, are proportions sufficiently strong in the commencement of stimulant treatment. EDITOR.

but merely a temporary or transient re-action of the part. Finely levigated glass, loaf sugar, or calomel, have been employed by some practitioners with the same view; but they are objectionable, on account of their irritating excessively the organ; beside, they can never be limited in their operation to the part diseased.

Whenever the affection is connected with any constitutional taint, as scrofula, syphilis, &c., remedies should be employed at the same time to correct the general disease. I have seen much benefit result from a slight mercurial action kept up in the system; and from the well known powers of this mineral in exciting the absorbents, it would be well to resort to this medicine in all obstinate cases of the disease, provided there is no circumstance of the patient preventing its trial. Hence too, the commendations bestowed upon the cicuta, belladonna, pulsatilla, &c., in the cure of opacity.

Opacity of the cornea is sometimes accompanied or dependent upon a varicose disposition of the veins of the conjunctiva, and in such cases one or more fasciculi of blood-vessels may be seen running from the white of the eye to the opake spot. The cure, under these circumstances, will be much accelerated by extirpating, with a knife, a small part of the varicose plexus[1].

---

[1] The following case being connected with the consideration of nebulous cornea is inserted, to exemplify at the same time the im-

Ulcers of the Cornea.—Ulcus Corneæ.

The cornea, like all the other parts of the body possessed of capillary organization, is liable to

paired vision which, in some cases, may result from irregularity of the corneal surface:—S. B., aged 14, of a strumous habit, applied to me on account of relapses of inflammation in her right eye. She had, about nine years before, suffered variolous inflammation of the organ. This left her with indistinct vision, amounting almost to blindness in the eye affected. Stimulants had been directed for some months without permanent relief to the inflammatory action, and with no benefit to the power of vision. At the period of her consulting me (June 1822,) she was unable to distinguish the compartments of a window frame, or see colours, but was sensible of shadow on the interception of light. In any attempt to view an object in her hand, she placed it close to the outer canthus. On examination of the eye, I was surprised to find the whole cornea perfectly transparent, except in one very slightly nebulous line, situated above and out of the axis of the pupil. There was little or no inflammation except in the eye-lids. On investigating the case farther, I was induced to examine the eye laterally, by which means I was enabled to discover three or four elevated points, or transparent papillæ, in the course of the nebulous line. I cannot better describe them than by copying my note, which compares them to a knotty thread of mucus lying on the cornea. It was now manifest that the impaired vision was referable to the irregular refraction produced by these lenticular points, which probably marked the limit of the original variolous disease. The flame of a candle produced iridescent scattering of light. I immediately applied a fine pencil of caustic to the slight ridge, and having thus rendered its points opake, I was gratified on presenting to the patient a brass porte crayon, with a portion of sulphate of copper, to find she at once distinguished the blue and yellow colours. She could also discover the window frame, and other objects. By occasional repetition of the treatment, until the surface of the cornea was level, she soon regained a power of seeing across a street, and eventually very useful vision. The insertion of ear-rings relieved the inflammatory disposition of the eye. EDITOR.

Abscess and *Ulceration.* Most commonly, these are seated superficially, or immediately beneath the conjunctiva, in other instances, the deeper lamellæ of the cornea are affected, or the disease is interstitial, and the delicate cellular membrane connecting these lamellæ is the part first attacked.

Ulcers of the cornea constitute, perhaps, the most numerous class of the diseases of the eye, and are generally consequent upon ophthalmia. Sometimes they are the effect of wounds or injuries done this membrane; or they are caused by the action of strong corrosive substances applied to the eye, and destroying the vitality of the cornea. Where they originate from the purulent form of ophthalmia, the ulceration in general commences externally, gradually deepening and enlarging, until it reaches the anterior chamber. Where the inflammation is deeper seated, or has its focus in the sclerotica, the disease will appear as an apostemation in the substance of the cornea, whence it proceeds to open without, as an external ulcer, or to penetrate the anterior chamber, giving rise to the disease termed *hypopion.* Sometimes the ulceration is confined entirely to the conjunctiva, or thin membrane covering the cornea, and is only to be recognized on viewing the eye laterally. In these cases, a thin shining crust often forms upon the denuded surface, which prevents the further progress of the disease, but leaves no opacity behind.

The pain which accompanies ulceration of the cornea is, in general, less severe, though more constant than that which the patient has experienced during the previous state of inflammation. Sometimes it is very acute, and the sensation felt, is not unlike that of a needle thrust into the eye. It is always aggravated by exposure to light, or by the motions of the eye-lids.

The part of the cornea, immediately adjacent to the ulcer, is usually obscured by a slight halo of lymph thrown out from the corneal vessels; and a fasciculus of vessels may be observed running from the sclerotic conjunctiva into this deposit. As soon as the ulcer has healed, these vessels contract and disappear; nor does the cicatrix which is left, entirely remain, being always partially absorbed.

In the *treatment* of ulceration of the cornea, the surgeon should be regulated by the stage of the inflammation, the seat and extent of the ulcer, and the constitution of his patient. Where the ulcerative process is accompanied with inflammation of the conjunctival or sclerotic coats, it can only be checked by those measures, which are capable of subduing such inflammation. In the active or inflammatory stage of the disease therefore, it will be necessary to adhere to the antiphlogistic treatment, and by cupping or leeching, to remove the congestion of the organ. As soon as the ulcer shows any disposition to heal, which may be known by the diminution of pain, and the light halo of lymph bordering the ulcer, we may inject over its surface any of the vegetable tepid astringent infusions. If the ulcer, however, remain transparent, or show no disposition to cicatrize, recourse should be had to more stimulating applications. Scarpa has recommended the caustic pencil, applied until a slough be formed; but it is more advantageous, perhaps, if the caustic but momentarily touch the ulcer; after which the milder stimulants will be sufficient to effect the cure. In general, it is preferable to resort to a solution of the caustic, in the proportion of four or six grains to the ounce of distilled water, which may be applied to the part, by means of a camel-hair pencil. Much attention is necessary to prevent an over stimulus, or a greater deposition of lymph round the ulcer, than is actually necessary for the cure. "The cleansing of the ulcer, and the opake adhesive circle, are the signs for a less frequent use of the solution; and the deposition of new matter, undergoing a vascular organization, renders its further use hazardous*."

In some cases, it will be found necessary to affect the system with mercury.

When the constitution is much debilitated, the pulse slow and languid, and the cornea disposed to slough, it will be necessary, in addition to the local treatment now advised, to resort to the free

---

[*] *Travers' Synopsis*, p. 279.

use of cinchona and other tonics. The mineral acids, and particularly the nitric, will be found an excellent adjuvant to the bark[1].

Staphyloma of the Cornea.

The term staphyloma, is applied to that affection of the cornea, in which that membrane loses its transparency, projects more or less in a conical form between the eye-lids, and is of a whitish, pearl, or bluish aspect. The whole of the cornea may assume these appearances, or the disease may be confined to a single part only, and this has given rise to the distinction of *Staphyloma Corneæ totale,* and *Staphyloma Corneæ partiale.*

---

[1] The ulcerations of the cornea, which most frequently and most obstinately require the attention of the surgeon, will be found connected with a scrofulous diathesis, and characterized by the triangular plexus of vessels running to or over the edge of the cornea. Their first appearance, is that of a phlyctenula at the corneal edge of the sclerotic conjunctiva, from which point they become gradually developed on the surface of the cornea. I cannot but repeat here, the advantage attendant on the institution of issues in the arm, which, by their influence on the general system, will be found at once curative and prophylactic. When the febrile irritation of the constitution, if it exist, is diminished by these and the administration of occasional aperients, with doses of mild mercurials and anodynes in combination, the adoption of slight stimulants expedites the recovery of the eye. Warmth of clothing, and even the regular temperature of the bed, are sometimes of great importance. The vinum opii, is very advantageous in dispersing the sequelæ of the inflammatory action. EDITOR.

In general, the staphyloma, after it has reached a certain size, remains stationary, or if it increases, it is in exact proportion to the increase or growth of the eye-ball. Sometimes, however, the tumour is of such enormous size, as to protrude to a considerable distance beyond the eye-lids, and to cause much deformity and inconvenience. For in such cases, the eye being constantly exposed to the air, is kept in a continual state of pain and irritation, and the tears, which are prevented from pursuing their healthy course, from the unnatural position of the puncta, are incessantly discharged over the cheeks.

The pathology of this affection is still involved in much obscurity. Scarpa is disposed to maintain, with the older surgeons, that it is caused by a "preternatural fluidity or turgescence of the vitreous humour;" which he says, is constantly found in large quantity, and of a watery consistence. It is very evident, however, that he has mistaken the nature of this fluid; and what he looks upon as the mere watery or thinly secreted vitreous humour, is, in fact, an increased secretion of the aqueous fluid.

Beer supposes staphyloma to depend for its formation, not so much upon an increased secretion, as a diminished absorption of the aqueous humour. This opinion is formed upon the supposition, that this fluid is secreted behind the iris, or in the posterior chamber, and taken up by the absorbents in the anterior chamber[*]. According to this view of the disease, staphyloma is always the consequence of inflammation existing at the same time in the iris and cornea, and causing their partial or total adhesion. The size of the staphyloma varies, according to the extent of union which takes place between these membranes. If the iris be united throughout its whole circumference there is produced a *total* staphyloma; if a portion of this membrane adhere to the cornea, there will be formed a *partial* staphyloma.

In the *treatment* of partial staphyloma, the chief indication should be, to prevent any increase of the tumour, or to depress, if possible, its further growth. Nothing can be attempted for the relief of the opacity, or the improvement of the vision; and all that the patient can reasonably expect from his surgeon, is to allay that friction of the cilia and lids upon the eye-ball, which, by constant irritation, may eventually produce total opacity or complete blindness. Where the disease is connected with a varicose state of vessels, *(cirsophthalmia)* it becomes a perfect *noli me tagere,* and any attempt to remove the deformity or blindness, is attended with an aggravation of all the symptoms.

Richter asserts, that he has often produced a diminution of the partial staphyloma, by exciting an artificial ulcer on the apex of the tumour, by the repeated application of the argentum nitratum, or the muriate of antimony. This practice is sanctioned by Professor Beer. The smallest quantity of either of these substances should be applied, by means of a fine hair pencil, to the apex of the tumour, and continued until a small whitish crust appears on its surface, when the whole is to be immediately and carefully washed away with a larger pencil, dipped into a little milk and water. This should not be repeated until the inflammation produced by the first application has entirely subsided, and the eschar fallen off. Stimulating salves, applied more generally over the eye, are always pernicious, and tend to the production of a varicose state of this organ.

---

[*] Magendie, Ribes, Edwards, and other modern physiologists, maintain a similar opinion with respect to the secretion of the aqueous humour.

In the more inveterate species of the disease, or in the staphyloma totale, the only effectual mode of arresting its progress, is by excision. This becomes the more necessary, where such tumour is liable, from any accidental bruise or wound, to assume a fungous or malignant growth, and thus require the total extirpation of the organ. The operation is very simple. The patient being seated, and the upper lid elevated by an assistant, an incision is made with the cataract knife, through the base of the staphyloma, precisely as in the operation for cataract. Whilst the assistant still supports the lid, the surgeon seizes the flap of the cornea with a pair of forceps, and divides with one stroke of the curved scissors, the remainder of the basis of the tumour.

The lid should be permitted to close immediately over the eye, and kept in this state until the cure is completed. Great care should be taken to avoid any pressure upon the organ, which may tend to propel the lens or vitreous humour. The dressing and after treatment are the same as in the operation for cataract. On separating the lids, after the lapse of six or eight days, a thin film or pseudo-cornea will be found to have formed over the opening, sufficiently transparent to enable the patient to distinguish the larger objects about him. This membrane, by degrees, becomes more dense and opake, so as to allow, after a short time, the adaptation of an artificial eye.

Some have attempted the cure of staphyloma by compression, but this is never attended with any benefit, and induces, besides, a constant degree of inflammation. The seton, though preferable, is liable to many disadvantages[1].

---

[1] An imperative reason for the removal of staphyloma is sometimes found in obstinate sympathetic disease of the other eye. Scarpa objects to the extensive removal of staphyloma at its base. The inflammation succeeding the operation is ordinarily very tractable by mild depletion, but occasionally the surgeon may have to subdue internal ophthalmitis. EDITOR.

Conical Cornea.—Staphyloma Conicum Pellucidum.

It is something very remarkable in the history of this affection, that although it has been described by several English and French surgeons, not a word respecting the disease is to be met with in any of the writings of the German authors, until within a very few years. Leveillé, in his translation of Scarpa's work, was the first to call the attention of the profession to the existence of this disease, as distinct from the common staphyloma. We are indebted, however, to Sir William Adams, and Dr. Lyall, of Petersburg, for the most perspicuous and lucid description of this affection.

The disease consists in a conoidal, or spherical projection of the cornea, resulting, most probably, from a loss of the natural elasticity of this membrane, or a process of interstitial absorption, whereby it is rendered unable to resist the natural pressure of its contents. Some pathologists are of opinion, that it is owing to a simple increase or dropsy of the aqueous humour. The cornea retains its transparency; its centre, however, or the apex of the cone, appears uncommonly pellucid or brilliant, as if a dew-drop were suspended from the point. It has not unaptly been compared to the appearance of a cut gem. The disease, in general, takes place very slowly, and the patient is rendered gradually myoptic. This shortsightedness, increasing with the progress of the complaint, is accompanied with an unnatural refraction of the rays of light, so that objects seen at the most moderate distance appear dim and confused, and the patient is at last unable to distinguish the larger bodies around him. This change of the cornea most commonly takes place in persons of middle age, and but rarely occurs in infancy or old age. It remains stationary for life, unless inflammation be excited in the part, when it becomes opake, or even proceeds to ulceration. Most frequently the disease is confined to one eye, sometimes both are affected.

Various attempts have been made to cure this affection, by stimulating or astringent applications to the part; but these have proved wholly useless, and the disease must be considered, at the present time, as irremediable. Mr. Travers has recommended the various tonics, as steel or arsenic, with repeated blisters behind the ears, as serviceable in arresting the progress of the disease; others have advised the evacuation of the aqueous humour, the depression of the lens, or the application of long continued pressure; but none of these have been attended with any decided benefit.

CHAPTER III.

OF THE DISEASES OF THE IRIS.

Mydriasis.

This name is applied to an extraordinary and permanent dilatation of the pupil. The transient dilatation which is caused when the eye is withdrawn from a lighter into a darker region, is dependent upon the peculiar organization of the iris, and cannot, therefore, fall under our consideration at present.

This affection most commonly attacks both eyes at the same time; often, however, the pupil of one eye only is dilated, whilst the other preserves its natural size. The form of the pupil is commonly the same as in the healthy state, at other times it is oval, elongated, or angular.

Mydriasis may be congenital or acquired, symptomatic or idiopathic. That species of mydriasis which is congenital, and consequently incurable, is most commonly symptomatic, depending upon a want of sensibility in the optic nerve, or its expansion into the retina. These cases generally terminate in complete gutta serena.

Long confinement in a dark room may render habitual that dilatation of the pupil, which the eye naturally suffers, on being deprived of its proper stimulus—light. It would appear, that like all other organs of the body, the iris, from want of proper exercise, loses its power of action. Persons who have passed a number of years in dark dungeons and gloomy cells, afford remarkable instances of the influence of habit on the motions of the iris.

Mydriasis is often a symptom only of some other disease, as amaurosis, worms in the intestines, organic affections of the brain, as apoplexy, hysteria, epilepsy, hydrocephalus, &c. The pupil is always found dilated during sleep, as well as after death. Persons affected with hydrophthalmia have the pupil much dilated, in consequence of the great development of the vitreous humour. Hence too, we find mydriasis often a symptom of cataract, more especially of the soft or milky kind, where the lens is much enlarged.

Idiopathic cases of mydriasis are much more rare than the sympathetic. They are most commonly induced by blows upon the eye injuring the frontal nerve, an effect which may probably be accounted for, from the connexion of the frontal branch of the fifth pair of nerves, with those supplying the iris. Sometimes they are caused by the too sudden and forcible expulsion of the crystalline, in the extraction of cataract. The iris, being compressed or extended by the passage of this body through it, causes a relaxation or palsy of its tissue. Injury or violence done to the ciliary nerves and body may cause a similar palsy of this membrane, and consequent dilatation of the pupil.

The diagnosis in mydriasis is readily made out. It is necessary merely to distinguish the symptomatic from the idiopathic species. In the former, our attention should be directed to the disease, of which this dilatation is but the symptom; and by relieving the one, we cure the other. In the idiopathic species, warm stimulating, aromatic and spirituous substances have been successively tried: as also scarifications, leeches, blisters, setons in the neck, purgatives, emetics, &c. In some instances, these remedies have succeeded; in general, however, they have proved fruitless, more particularly, where the disease has been congenital.

The pupil is also liable to excessive contraction, a disease known under the name of

Myosis.—Phthisis Pupillæ.

It is in some cases even completely obliterated, when it is termed *Synizesis.* These two diseases differ merely in degree, both being ascribable to the same causes.

Myosis may be symptomatic or idiopathic. The former is the case where, from an undue degree of sensibility in the retina, caused by, or subsequent to inflammation of the eye, the pupil is found extraordinarily contracted. Nature, in this manner, provides against the injurious effects, which might otherwise result from the continual irritation of so delicate a membrane. Inflammation of the brain is a common cause of myosis *.

The most frequent of all the causes of this contraction of the pupil is a violent ophthalmia, spreading to the iris, or it may be the effect of iritis itself. Hence it is a common sequela of the operation for cataract.

Myosis is often the consequence of wounds of the iris, or of the detachment of this membrane from the ciliary ligament, by violent contusion of the eye.

Myosis often comes on without any previous inflammation, and without any apparent affection of the eye. Gouty persons, and particularly such as have suffered the operation for cataract, are most subject to the disease; and it may appear a week, months, or even years after the operation, without any evident cause, or any previous pain or inflammation of the organ.

Persons compelled by their profession to fix their eyes continually upon minute or glaring objects, are liable to have the pupil very contracted, as watch-makers, silver-smiths, miniature painters, engravers, &c. This arises *ex consuetudine.* The pupil, to guard the retina from the injurious consequences of the too vivid light, contracts; and this contraction, produced at first from habit, becomes at length so firmly established, that it is impossible afterwards to dilate the pupil.

---

* Vide *Clark's Commentaries on some of the most important Diseases of Children*, p. 71.

There is yet a species of myosis which may be termed the myosis *spuria*, where the pupil is closed by some extraneous matter. This may be a clot of blood from extravasation in either of the chambers, pus filling up these cavities, or some parts of the lens left behind after the extraction of cataract. This extraneous matter is frequently the coagulable lymph which is thrown out from the iris under a state of inflammation. I have seen the whole pupil filled with such a boss of lymph, so that the vision was completely destroyed; yet the whole was absorbed again in a few days under proper treatment.

Synechia.

The iris is sometimes found united to the cornea, at other times to the capsule of the lens; and this has given origin to the terms *Synechia anterior* and *posterior*. The former may be congenital; but it is most generally the consequence of wounds penetrating the cornea, abscesses forming between the coats of this membrane, producing fistulous openings, or operations upon the eye. The adhesion formed in this way is seldom general, but exists only at the part wounded, or at the inferior portion of the cornea, where abscesses are most liable to be seated. It is very readily recognized; the united portion of the iris, and corresponding portion of the pupil, being commonly more prominent and immoveable, whilst the rest of the iris and pupil maintain their natural form and mobility. The deformity of the pupil is in proportion as the adhesion is formed nearer the circumference of the cornea, or to the degree of dilatation at the time of its formation.

Synechia posterior may succeed to the same causes, but is most commonly the effect of deep seated inflammation of the eye, or of iritis. The adhesion in these cases is most generally total between the iris and capsule; and the pupil, though immoveable, maintains its natural figure and situation. Where the adhesion is only partial, the pupil is more or less angular and distorted.

In the first case, the disease is always incurable. Where it is partial only, and the uniting medium consists of a small portion of coagulating lymph, much benefit will be derived from the use of the belladonna or hyosciamus, in the manner advised when speaking of iritis, aided by the internal administration of small doses of mercury. The same means may prove effectual, even after this lymph has become organized.

To prevent this adhesion in cases of wounds of the eye, it has been advised to expose this organ to alternate changes of light and darkness, so as to cause the iris to dilate and contract, and thus oppose its union with the contiguous membranes. Such a practice, however, must always prove prejudicial, as it never fails to increase the inflammation, which inevitably follows any violence inflicted upon so delicate and susceptible an organ[1].

Prolapsus of the Iris.—Prolapsus Iridis.

This affection is also termed *Staphyloma iridis*, and consists of a tumour, formed by the iris, protruding through an unnatural opening of the cornea. The tumour which results from this protrusion is necessarily of the colour of the iris. Its size varies from that of a pin's head to a small pea; and hence the different names of *myocephalon, melon, hylon,* &c. The form is, in general, irregular; its surface is rarely smooth, as in staphyloma of the cornea, but more commonly unequal or angular; the tumour is soft, and when recent, easily reducible. As the cornea is seldom pierced in more than one spot, the prolapsus is most usually single; where this membrane is wounded in several places, the staphyloma may be multiple.

---

[1] Much of the pathology of the iris can be explicable only by a more certain knowledge of its structure and function, which at present are too conjectural. While the phenomena of disease or health are referred by one theory to irritable contractility, they are by another ascribed to elasticity; and paralysis or excitability are made to solve the same difficulties. As, however, we are warranted in the belief, that the radiated portion of the iris may be influenced by stimuli, the supposition that the dilatation of the pupil is dependent on mere elasticity is still questionable. It will be at least worthy inquiry, whether the dilatation of pupil, in some instances, as in hydrocephalus, &c., and in the extreme degree produced by belladonna, is analogous to the perfectly passive state or paralysis, sometimes attendant on severe concussion of the eye, the growth of fungoid disease, &c.—Vide Note on Treatment of Iritis. The assertion of the author that the pupil is dilated during sleep (p. 109.) is unfounded, the reverse being readily observable in a sleeping infant. EDITOR.

The patient complains of a pain, similar to that produced by a pin thrust into the eye, or of a sensation of tightness or constriction of the eyeball, like to that caused by a ligature around the organ. The pupil is always distorted and drawn from its natural situation towards the aperture where the protrusion takes place; it loses its circular, and assumes an oval or oblong form. Hence the distinctness, as well as the sphere of vision, is considerably impaired. To these symptoms are often superadded an habitual epiphora and inflammation, rendering the light excessively painful. By degrees the tumour hardens and becomes indolent, or gradually disappears, so that after a certain time nothing more is perceptible than a small blackish point in the midst of the cicatrix. The pupil, however, remains in the state before described.

The diagnosis in this disease is easily made out—the appearance of a tumour after a wound or ulceration of the cornea, and a deformity of the pupil, are its pathognomonic signs.

Some surgeons have advised the prolapsed iris to be returned into its natural situation by means of an ivory stylet, or the common curette. This, however, is, in general, impracticable[1]. Where the prolapsed part is large, it should be snipped off with a pair of scissors[2]; after which the wound may be slightly touched with the caustic pencil. In this manner, the adhesive action is soon set up, and an union takes place between the iris and cornea. Where the prolapsus is of long standing, and does not yield to the caustic, it may be removed with the cornea knife or scissors[3].

---

[1] In some cases of purulent ophthalmy of infants, and of scrofulous ophthalmy, in which the iris is protruded through a mere pin-point ulceration of the cornea, strabismus, especially in infants, may result from the attachment of the iris and its attendant opacity. The extent of cicatrix, especially in patients liable to relapse of inflammation of cornea, may be increased by inosculation with the vessels of the iris. It may, therefore, be desirable to guard against extensive implication of the iris by the early use of belladonna. Perhaps, where the ulceration is remote from the circumference of the cornea, and very small, the iris may be kept wholly disengaged, till processes of reparation prevent the risk of protrusion. The evacuation of the aqueous humour is an accident unimportant, and quickly remedied on closure of the fistulous opening through the cornea. EDITOR.

[2] The use of scissors is more safely applicable to old cases. The recent prolapse is advantageously treated with caustic until the adhesion is complete. ED.

[3] Sometimes at the bottom of an ulcer, or wound of the cornea, a dark pellucid globule is seen gradually to protrude. The nature of this accident has given rise to great discrepancy of opinion among the most eminent surgeons. Scarpa maintains that it is

Artificial Pupil.

A very frequent cause of blindness is that obliteration of the pupil which results from severe inflammation of the iris, and there are few operations which the surgeon is called upon to perform, which require more dexterity and neatness in execution than that necessary to remedy such a defect.

Cheselden is reputed to have been the first who

---

vitreous humour. Professor Beer and Mr. Travers are inclined to deny its distinct texture; and the latter states that its appearance corresponds accurately to that of the innermost lamellæ of the cornea. Descemet and Demours, with Dr. Vetch, refer it to protrusion of the membrane of the aqueous humour. Dr. Vetch has certainly furnished the most satisfactory account of this pellucid vesicle. (p. 54.) The objection raised by Scarpa, of the re-appearance of the globule after excision, and the statement that the aqueous humour is not discharged by puncturing it, although unnoticed by Dr. Vetch, are not valid in refutation of the old doctrine, of its being formed by the protruded membrane of the aqueous humour. If there be strangulation of the neck of the supposed sac, from narrowness of the ulcer, or thickening, or adhesion of the iris, the communication of the vesicle with the anterior chamber may be intercepted, although the sac thus insulated is still capable of secreting the watery fluid, and effecting a rapid adhesion of its divided edges. Where, however, from extent of ulceration, this strangulation is not perfect, the aqueous humour of the anterior chamber will be actually discharged on puncture, and the iris thrown forward. This occurred to my own observation, in a case under my care in Christ's Hospital. The best treatment is the application of caustic, whenever the globule appears above the level of the cornea. The circle of surrounding adhesion is thus seen gradually to encroach on the dark central point of staphyloma, till this becomes wholly opake, and forms a part of the cicatrix, no longer distinguishable from the rest. EDITOR.

divided the iris, for the purpose of forming an artificial pupil. His method was after the following manner:—He introduced through the sclerotica, at the distance of about one line and a half from the cornea, a couching needle, sharp on one side only, as if to depress an opake crystalline. When the point of the instrument reached the internal side of the posterior chamber, he thrust it from behind forward through the iris, dividing this membrane transversely from the internal to the external angle of the eye. If the affection was not accompanied with cataract, he pierced theiris through the middle; when it was complicated with cataract, he made his incision through the superior part of this membrane, lest the opake lens might obstruct the rays of light in their passage to the retina.

This operation has been repeated several times since the days of Cheselden, but seldom with much success. Janin* attempted it twice, but found the wound to close again, as soon as the inflammatory symptoms had subsided. Sharp†, who was the first to imitate the practice of Cheselden, met with the same result. He employed the same needle that Cheselden had done, but introduced it into the anterior chamber, the more effectually to regulate its movement. In this operation, he necessarily penetrated the crystalline lens and its capsule.

---

* *Memoires sur l'œil*, p. 182.

† *Operations of Surgery*, p. 167.

Janin having failed in his first efforts to perform an artificial pupil, and observing accidentally, in extracting a cataract, that the vertical incision he made of the iris did not heal as the transverse, was induced to attempt the operation by practising a perpendicular section. His success in this new method fully equalled his expectations, and was quite complete in four cases, which he narrates. Several succeeding oculists have imitated the practice of Janin, but the result would scarcely justify the strong encomiums bestowed by its inventor.

This operation of Cheselden has now but few advocates either in England or upon the Continent; and these are to be found only among those who contend for the circular and radial fibres of the iris. Maunoir, of Geneva, is among the number; and in his work, *sur l'organization de l'iris, et l'operation de la pupille artificielle,* has entered into a very elaborate disquisition of this doctrine*. From the general want of success which attended the practice of the operation on the Continent, the French, and afterwards the Germans, were much disposed to doubt the veracity of the English surgeon; but the difference in the result may be easily accounted for, from the different circumstances of the cases operated upon [1]. Indeed, we know of but one condition of the iris, in which we could look for a favourable result from this mode of operating, viz. where this membrane appears stretched and tense across the eye; and such may have been the precise circumstances under which Cheselden operated*.

---

* A translation of these Memoirs by Mr. Young, may be found in the 17th volume of the *Medical and Physical Journal.* M. Maunoir supposes, contrary to the opinion of the first anatomists, the iris to be composed of two sets of fibres, essentially muscular, and forming two distinct bundles. The one, composed of nearly parallel fibres, extends, as radii of a circle from the large circumference to the less circle of the iris. The other, commencing where the first terminates, continues to the pupil; the fibres forming a number of concentric circles, which make out what is termed the *circulus minor*. To the first fasiculus, he gives the name of *musculus dilator*, and to the second *musculus contractor*. Pro-

fessor Maunoir practised his operation with a scissors peculiarly constructed for the purpose. The one of the blades, which was to enter the iris, was very sharp at the point; the other, which was somewhat longer, and intended to pass between the iris and cornea, was blunt, and furnished at the end with a small button or knob, to prevent its becoming entangled with either of these coats.

* The operation has, of late years, been revived again in England by Sir W. Adams. The following is his mode of operating:—The patient being seated as in the operation for cataract, and the eye being steadied by the finger of an assistant, a small

---

[1] Maunoir provides against one objection to the operation of coretomia, viz. the subsequent contraction of the new pupil, by a double incision in the shape of a V, the apex being at the centre of the iris: In consequence of the retraction, a semilunar or square shaped pupil restores the vision of the patient. See Weller's Manual, vol. ii. p. 60, for a full account of the mode of operation. Those who are not disposed to place the operation of coretomy, so low in the scale of utility, may consult more particularly, thetestimony of Maunoir andScarpa, Med. Chir. Trans. vols. vii. and xi. Sir W. Adams, Mr. Ware, Dr. Monteath Weller's Manual. vol. ii. p. 70, Dr. Ryan Dublin Hospital Reps. vol. ii. Travers' Synopsis, p.343. EDITOR.

Professor Schmidt* has given to the operation just described, the name of *Coretomia,* to distinguish it from two others we are now to notice. The former signifies a simple incision of the iris, *without* loss of substance; the second, or *Corectomia,* an incision of the iris, *with* loss of substance; the third, *Coredialysis,* the separation, or tearing asunder of this membrane from the ciliary ligament.

Wenzel, Senior †, was the first to propose and put into execution the practice of *cutting out* a portion of the iris, to remedy the inconvenience

---

knife, about a line broad, and eight in length, with its edge turned backwards, is introduced through the coats of the eye at their external part, about a line behind the iris, and in its transverse diameter. The point of the instrument is then made to penetrate through the iris into the anterior chamber, in a line with its central diameter, and somewhat less than one third of the width of that membrane from its ciliary margin. The knife is then to be carried through the anterior chamber towards the inner canthus, keeping its edge in contact with the iris, (in order to prevent its point from piercing the internal part of the cornea) until it has traversed more than two-thirds of the width of the iris, when it should, with great care, be drawn backwards, almost out of the eye, making the most delicate pressure, with the edge of the instrument against the iris, lest it should be detached from the ciliary ligament.

If the division of the iris is not effected to a sufficient extent during the first effort, the iris scalpel is to be again carried forward and withrawn in a similar manner. This is to be repeated as often as may be necessary to effect a division of the iris, to the extent of a third part of its diameter." *Practical Observations on Ectropion, and on the modes of performing an Artificial Pupil, &c.* 8vo. London, 1814.

* *Ophthlamologische Bibliothek.* Band II. St. 1.

† *Traité sur la Cataracte.*

which had so often resulted from the closure of the wound according to Janin's method. He commenced by making an incision through the cornea with the cataract knife, as if to extract the lens; but when the point of this instrument reached about half a line from the centre of the iris he plunged it through this membrane, and brought it out again, about the distance of three quarters of a line from its entrance. In this manner he completed, with a single sweep of his knife, two semi-lunar incisions; the one of the cornea, the other of the iris. Small scissors were then introduced under the cornea, and the divided portion of iris cut away.

Guerin has in several instances succeeded, by modifying a little the process of Wenzel. Having finished the section of the cornea, he made a crucial incision of the iris, and then removed the four angles of the cross with a pair of scissors.

Although the two methods here described seem to remove entirely the objection made to Cheselden's operation, they are attended with disadvantages of a still more serious nature. Not to mention the extreme difficulty of the operation itself; it is always accompanied with great irritation and inflammation, and may even cause the entire destruction of the organ.

Mr. Gibson, of Manchester *, has recommended a different mode of excising a part of the iris.

---

* *Practical Observations on the Formation of Artificial Pupil.* London, 1811.

The first step of this operation consists in securing the eye-lids, as in the operation for extracting the cataract. "A puncture is then to be made in the cornea, with a broad cornea knife, within a line of the sclerotic, to the extent of about three lines. All pressure is now to be removed from the eye-ball, and the cornea knife gently withdrawn. The consequence of this is, that a portion of the aqueous humour escapes, and the iris falls into contact with the opening in the cornea, and closes it like a valve. A slight pressure must now be made on the superior and nasal part of the eye-ball, with the fore and middle finger of the left, and till at length, by an occasional and gentle increase of the pressure, or by varying its direction, the iris gradually protrudes, so as to present a bag of the size of a large pin's head. This protruded portion must be cut off with a pair of fine curved scissors, and all pressure at the same time removed; the iris will then recede within the eye, and the portion which has been removed will leave an artificial pupil more or less circular." Perhaps the preferable mode of performing corectomia, is that practised by Professor Beer *. Having made an incision of the cornea about a line in length, and as near to the sclerotica as possible, the iris, if it is no way adherent to the cornea, will be protruded between the lips of the wound, of which the surgeon immediately avails

---

* *Lehrbuch von den Augenkrankeiten*, &c. Wien. 1817.

himself, by laying hold of the prolapsed part with a small cataract hook, and cutting it off as close as possible with a pair of Daviel's scissors. The remainder of the iris immediately shrinks back, and a well shaped pupil is evident. If the iris, however, adhere, in any part of its border, with the cornea, the operator is to introduce a small hook, in such a manner as neither to wound the iris nor the cornea; and endeavour to seize the pupillary edge of the iris, and drawing it out cut it off, as before directed. Lastly, where the iris is connected with the cornea, at the spot where the pupil is to be formed, the larger circle of this membrane should be seized by means of a hook, or if this tears out, by a fine pointed and indented forceps; and the iris, thus torn, is to be drawn out, if possible, and cut away. Sometimes, it is even necessary to introduce the scissors within the incision, to cut away the part which has been seized by the forceps, and thereby prevent the too extensive laceration of the iris.

Although the facility with which the iris may be torn from its attachment with the ciliary ligament, was noticed and observed by many surgeons of the last century *, the practice of *Co-*

---

* Sharp, speaking of Cheselden's operation, says, "in doing this operation, the patient must be placed as for couching, and the eye kept open and fixed by a speculum, which is absolutely necessary here, for the very reason I would discard it in the other, since the flaccidity of the membrane from the issue of the aqueous humour would take away its proper resistance to the knife, and make it,

iredialysis was not introduced till the year 1802; when it was first made known by Dr. A. Schmidt, in Germany, and by Scarpa, about the same time, in Italy. We are at a loss to which of these gentlemen to ascribe the priority, as both have obtained the merit of its first discovery. Assalini affirms to have practised this operation as early as 1787, at Reggio; and Buzzi, an oculist of Milan, but one year later; but neither of these gentlemen made their practice generally known until many years after the works of Schmidt and Scarpa had made their appearance.

Various modes have been recommended and adopted for performing this operation; but I shall notice the most important only. Scarpa's is after the following manner:—The patient being seated, and secured as for the operation of cataract, a couching needle, not quite so large as that in common use, is made to pierce the sclerotica, about two lines from its union with the cornea. When the point has reached the upper and internal part of the border of the iris, it is thrust into this membrane, at a small distance from the ciliary ligament, until it is just perceptible in the anterior chamber. This step of the operation requires attention, as this part of the chamber is very narrow, and

instead of being cut through, *tear from the ligamentum ciliare.*" Vide p. 166. vol. i.

Guerin remarks, "*the iris is very easily separated from the ciliary ligament;* a circumstance never to be lost sight of in operating for cataract," &c.

the instrument may become entangled in the cornea, which lies close upon the iris. The surgeon is then to press, with the needle, the iris from above downwards, and from the internal towards the external angle of the eye, so as to detach a portion of its border from the ciliary ligament. When this is obtained, the point of the instrument must be depressed, so as to rest upon the inferior angle of the wound, which may be rendered as large as necessary, by drawing the iris towards the temple. If the pupil then be found clear, the needle is withdrawn; but should there remain any portion of the opake lens, or its capsule, obstructing the orifice, it is to be broken down, and brought into the anterior chamber for absorption.

Scarpa[*], from the late edition of his work, appears to have relinquished this mode of operating, as he has found by experience, "that the newly formed *oval* pupil becomes, in process of time, *filiform*, and consequently useless." After noticing the various modes practised by Donegana, Flajani, Adams, Gibson, Beer, and others, he seems disposed to prefer the method of Maunoir.

Schmidt[†], instead of piercing the sclerotica in the manner of Scarpa, and entering the iris from behind, made a section of the cornea with a lancet-shaped knife, opposite that where he intended his artificial pupil; and introducing a small hook, or pair of forceps, seized upon the iris near its ciliary border, and tore it from its attachments. It is proper to remark, however, that he practised this mode only when the cornea was quite transparent and healthy; in other cases his operation was little different from that of Scarpa, excepting that his needle was slightly curved at the point, the better to enable him to seize upon the iris.

---

[*] *A Treatise on the Principal Diseases of the Eye*, by A. Scarpa; translated by James Briggs, London, 1818.

[†] Vide *Opthalmologische Bibliothek*. Band II. St. 1.

Assalini*, after noticing the successive improvements this operation has undergone, suggests another of his own, not entirely unexceptionable. Having made a section of the cornea, he introduces a species of forceps, the one extremity of which being pointed, is easily made to pierce the iris. The apices of this instrument are dentated, and made to close most accurately, so that having laid hold of the iris, he was able to detach it with the greatest facility from the ciliary ligament.

Professor Beer has now, in a great measure, abandoned the practice of coredialysis detailed in his work, and adopted that recommended by Reissinger, which consists in strangulating the iris with a double hooked forceps, between the edges of the cornea. The operation must be begun near the outer edge of the cornea, and if possible three lines distant from that part of the iris which is to be separated. The incision of the cornea is best made by the lancet-shaped knife, and should never exceed three lines in length, or the prolapsed part cannot be sufficiently strangulated. The double hooked forceps, closed, (Fig. 2.) is now introduced through the opening of the cornea, carried forward in a parallel direction to the iris, and with the points downwards, till it reaches as near as possible the ciliary edge of the iris. The forceps are then to be turned, that the points of the hooks may be directed towards the iris, and the blades slightly opened, are sunk into the iris. The surgeon now closes the forceps again, at the same time that he draws them towards the opening of the cornea, and gently and easily disengages the iris. In this manner a considerable part of this membrane will be separated, which is brought through the wound of the cornea, and left to unite with the cicatrix; producing thus a species of prolapsus iridis. Where the iris shows any disposition to retract, and the first or second effort is not sufficient to retain it between the edges of the wound, it will be proper to cut off the part of the iris which has been separated, thus uniting coredialysis with corectomia.

---

* *Ricerche sulle pupille artificiali.* Milano, 1811.

The instruments of Langenbeck, Græfe, Emden, Wagner, &c., are little more than modifications of that of Reissinger. Emden * asks, whether so de-

---

* *De Raphiankistro, novo instrumento ad coromorphoseos methodum perficiendam, &c.* 1818.

licate an operation should be undertaken through the cornea or sclerotica. He thinks the danger arising from the latter mode has been much overrated, and suggests the question, whether the improvements made in operating *per corneam*, cannot be transferred to the operation *per scleroticam*. After a number of experiments, performed with this view on the eyes of brute animals, he invented for this purpose, what he terms his ***Raphiankistron***.

It is hardly necessary to state, that in all cases where it is practicable, the pupil should be made on the side near the nose; because less squinting is occasioned when performed in this direction than in any other. In some instances, however, where the cornea is opake in this half, no choice is left us, and we are compelled to practise the operation upon the upper or external part[1].

Assalini, in his pamphlet already quoted, recommends the separation of the iris from the ciliary ligament to be made in the parts situated between the insertions of the recti muscles, thinking it done with greater facility, on account of the smaller number of vessels[1]. Another very material advantage is gained by this method; as the hæmorrhagy in many cases is so great, from the rupture of these vessels, as to cause no small degree of embarrassment and difficulty to the most dexterous operator. The bottom of the eye, which in the first moments of the operation was seen black and shining, is soon obscured by the numberless streams of blood, issuing from the torn mouths of the arteries and veins, and in a very little time the whole of the anterior and posterior chambers of the eye are filled with blood, so that no part of the iris is any longer discernible. Hence the necessity of operating quickly, as under these circumstances the operation can seldom be completed. The bleeding never continues long, and the surgeon has nothing to fear, as after a few days confinement, the blood is all absorbed; but it is not until some weeks have elapsed, that he can judge of the full success of his operation.

---

[1] "When an artificial pupil cannot be made in the centre of the iris (from whatever cause) the other parts of it are eligible in the following order:—1st, The inferior part of the iris, inclining inwards. 2d, The internal a little below the transverse diameter of the eye. 3d, The inferior and external; the upper part being the least eligible from the eye-lid covering that portion of the cornea in the natural state of the eye." Guthrie Op. Surgery of the Eye, p. 442. A small pupil at the lower part of the iris is also stated to be much more useful than one larger formed, much out of the axis of vision, or in a part which, in the natural state of the eye, is covered by the eye-lid. EDITOR.

A sound part of the iris should always be selected in preference to one apparently unhealthy.

No attempt should be made to restore the vision, where the *larger* circle of the iris has suffered so much from previous disease, that its structure and colour have completely changed; the same objection, however, is not applicable to those cases, in which the *less* circle only is diseased. In the former case, the fibres of the iris generally project more towards the cornea[1], or sink deeper towards the lens, and the part of the sclerotica which immediately encircles the cornea, puts on a dirty grey or bluish appearance.

---

[1] Mr. Guthrie considers the external and internal margins of the iris, immediately on a line with the central transverse diameter, particularly unfavourable for coredialysis, on account of the distribution of the long ciliary arteries, and the firmer attachment of the iris in these situations. EDITOR.

---

[1] "A general convexity of the iris, which otherwise retains a healthy appearance, may not indicate any posterior disorganization, but rather a continuance of healthy action in some parts behind it. The membrane lining the transparent cornea has been called the membrane of the aqueous humour, on the supposition that it alone secretes that fluid; but this has by no means been demonstrated, whilst there are many facts leading to a contrary opinion; for although some may be secreted in the anterior chamber, the principal part of this fluid passes from the posterior to the anterior chamber, through the pupil, keeping up an equal pressure on both sides of the iris. If the pupil be closed completely, and the posterior secreting organs of the aqueous humour remain in activity, the fluid thrown out behind the iris not being able to pass through, presses it against the cornea, and gives it the convex shape alluded to. The pupil, in a case of this kind, will appear completely closed, or filled up by a membranous substance, but appearances here are deceitful; for from the subtilty of the aqueous humour, the pupil may seem to be closed, when it is not actually impervious to this fluid, and vice versâ. Beer and Himly incline to the opinion I have stated, and the mode of relief favours it remarkably. It is by first making a small opening at the place of the natural pupil (perhaps removing the lens by depression) when the aqueous humour gets before the iris, and if it be not attached to the cornea, presses it back, and gives room for a subsequent enlargement of the pupil." Mr. Guthrie, from whose lectures, p. 450, the above observations are taken, next proceeds to give a very important case, for which I must refer the reader to the above work. The fallacious appearance of pupil on retraction of the edge of the iris, produced by pigmentum nigrum on a layer of coagulated lymph, is of much interest. EDITOR.

The operation should never be undertaken in that state of the iris, which was known to the older oculists under the name of synizesis, or phthisis pupillæ, and depending upon a loss of the vitreous humour; as the blindness in these cases is not owing to the closure of the pupil, but to the diseased state of the inner membranes[1]. It is alike contra-indicated, where there exists at the same time with the deranged state of the iris disease of the ciliary body, vitreous humour, or retina, a varicose state, or general atrophy of the eye-ball.

It is absolutely necessary for the success of the operation, that the patient be enabled to distinguish light from darkness. If the eye remain alike unaffected and insensible, when exposed to the glare of the sun, or confined in a dark chamber, it is most probable, that the same inflammation which has closed the pupil has extended to the retina and choroid. Under these circumstances, it is evident that no operation can be attended with success. The patient often flatters himself that his case is not altogether hopeless, from his having at times scintillations or flashes of light of different colours in the eye; but this is nothing more than the diseased sensation, which all amaurotic patients experience, and the prognosis under these circumstances is only rendered worse.

---

[1] A trembling, or oscillating iris is unfavourable. Mr. Guthrie says, that " the iris will frequently retain this intestine kind of motion, although the pupil be closed, and more especially if the lens should have fallen back into the vitreous humour. EDITOR.

An artificial pupil should never be attempted where the one eye is perfectly sound; for as the newly formed pupil is without the axis of vision, the person will be liable to squint. Besides, the *power* of both eyes being different, the vision will be rendered more confused and indistinct.

The eye must be possessed of its natural size and tension, the sclerotica and conjunctiva perfectly healthy, and without any varicose disposition of vessels. Should the eye, on examination, prove flaccid and soft to the feel, the surgeon may rest assured there is atrophy of the organ, and any operation under these circumstances must prove utterly destructive.

The result of this operation is always very doubtful, where there is extensive leucoma of the cornea, or partial staphyloma of this coat, or where there is a predisposition in the system to gout, rheumatism, scrofula, &c.

" Many reasons have been assigned for the frequent failure of the operation for artificial pupil, but the chief cause has probably been overlooked. According to my view of the matter, disappointment has arisen chiefly from our not having adapted the most appropriate operation to each particular case; nothing can tend to counteract our endeavours more completely, than a prepossession in favour of any one mode of operation, or an adherence to the rules laid down by any writer, however high his reputation [*]."

The different conditions of the eye requiring this operation are so various, that no general rules can be laid down applicable to all cases, and much must be left to the judgment and discrimination of the surgeon, in adapting his operation to the particular circumstances of each case.

Corectomia, or the cutting out a portion of the iris, is more particularly indicated where the lens and its capsule are perfectly sound. Such instances are by no means rare, and most generally succeed to inflammation of the external coats of the organ, causing ulcers of the cornea. If so small a portion of the cornea, however, remain transparent, that there is risk of endangering this, by the necessary incision to introduce the hook, it will be better to resort to coredialysis, although the vision from this operation is naturally less perfect. The most favourable cases for excision are those where the opacity is confined to the central part of the cornea, the circumference remaining perfectly sound and transparent. Professor Himly [†] attempted in these cases to excite a permanent dilatation of the pupil, by the application of hyosciamus; but finding this to fail in its effect, when long continued, notwithstanding what has been asserted to the contrary by Adams, Hill, Saunders and others, he was led to a new mode of performing artificial pupil. Having observed in a case of this kind that, by a prolapsus of the iris, the pupil was so drawn from its natural and healthy position, as to permit the rays of light to pass through it, from the still transparent circumference of the cornea, he attempted to imitate by art what had here been wrought by accident, and by the formation of a prolapsus iridis, to create a new pupil. His success, in the several instances in which he practised this operation, was most complete, nor was it followed by any great degree of inflammation of the iris, nor in any case by opacity of the lens or cornea.

---

[*] Dr. Ryan, in the *Dublin Hospital Reports and Communications in Medecine,* Vol. ii.

[†] *Bibliothek für Ophthalmologie,* &c. 1 Band. 1 Stük. p. 175.

In addition to the leucoma or opacity of the cornea, the iris may be slightly adherent to this tunic. It will be sufficient in these cases to divide its fibres with the small cataract or iris knife, when they will be found to retract, and leave a sufficiently large pupil; or the free border of the pupil may be drawn out by means of a forceps through an incision of the cornea, and removed with the scissors, in the manner directed by Mr. Travers.

Corectomia is further indicated in that species of occlusio pupillæ, which is caused by inflammation of the iris, after the extraction of cataract provided the effused lymph in the posterior chamber does not extend beyond the less circle of the iris, or there is no opacity of the remaining lens or capsule. The former may be ascertained, from the natural form and colour of the larger circle; the latter, from the very imperfect vision of the patient, with regard to the various gradations of light.

Where this effused lymph has extended to the larger circle of the iris, we must substitute the *coredialysis.* The same operation is to be practised, where the closed pupil has resulted from iritis, and the lens is still present. There is commonly in this case adhesion of the iris with the capsule[1]. Professor Himly advises that the lens be depressed previous to the operation of artificial pupil; but this is, in general, unnecessary, as the lens is brought from its natural situation towards the external angle of the eye, by the very manœuvre used with the forceps to disengage the iris, or it is so small as not to extend to the larger border of the iris, so that it can seldom obstruct the new pupil.

The only cases, perhaps, which could justify the method of Himly would be those where the iris lies so close upon the cornea, as to render it impossible to disengage the former without entangling the latter in the point of our needle. By depressing the lens previously, the iris will be found in a few weeks to have considerably sunk, and the operation rendered comparatively easy.

---

[1] See Professor Maunoir on this subject, Med. Chirur. Trans. Vol. ix. p. 386. He is of opinion that it is desirable to employ the buttoned scissors in all cases of cataract, where there is a complication of the immobility of the iris, and its adherence to the opake capsule of the crystalline. A valuable case is subjoined. Ed.

Lastly, coredialysis is always indicated where the cornea is so marked with cicatrices, or is incurably opake, to such an extent that a sufficient opening cannot be made into it, to undertake the operation of excision[1].

Where the cornea is entirely opake, so as to preclude the possibility of making an artificial pupil through the iris, Professor Authenrieth, of Tubingen, has advised its performance in the sclerotic coat *. The only cases in which this operation has been performed on the human subject, are those of Professor Beer † and Mr. Guthrie; and the operation proved unsuccessful in both instances.

* Vide *Dissertatio de pupilla artificiala in sclerotica operienda*, &c. autore L. Schmidt. Tubingæ, 1814.

† *Medicinische Jahrbücher von Œsterreich.* IV Band. 2. Stück.

---

[1] If in operating for artificial pupil, two openings be accidentally made, confusion of vision results: Mr. Guthrie advises that they be laid into one at a subsequent period. EDITOR.

[2] The division of opake cornea does not unite by adhesion, and is prone to ulceration. ED.

CHAPTER IV.

OF THE DISEASES OF THE RETINA.

Amaurosis.

The terms *amaurosis, gutta serena, suffusio nigra,* &c., are applied to that species of blindness which is produced by some immediate affection of the optic nerve, or of its expansion into the retina. This definition includes, of course, not only the amaurosis originating primarily in these structures, but that species also which is symptomatic of some other disease of the organ or general system.

The disease does not always amount to complete blindness. In some cases, indeed, the vision is entirely extinct; most commonly, however, the patient retains some slight perception of light, or is enabled to distinguish the larger objects around him. Long before the disease has arrived at this stage, he complains of certain defects in his sight, or appearances before the eye, which alarm him in proportion as they impede his vision; and it is these appearances, which can only be regarded as symptoms or precursors of the complaint, that many pathologists have considered, under numberless titles of *vitia visus*, as forming so many distinct and separate varieties of amaurosis. One of the most important of these symptomatic appearances is the *Visus interruptus*. Thus, in reading, the patient perceives that syllables, words, or whole lines are wanting upon the page; and he is obliged to move the eye or head to render them distinct. If he look upon any other object, he will seldom see it complete, unless by a similar motion of the head. In other instances, he sees the whole of the object, when it is held in a particular direction, but loses it again as soon as this position is altered.

One of the most frequent of the precursors of amaurosis, is the appearance of motes, or small bodies floating before the eye; the *Visus muscarum, Muscæ volitantes, mouches volantes* of the French writers. These are either single or multitudinous, and assume a great variety of forms. They have a slow rambling motion, following in some measure the motions of the eye; or their motion is rapid and sudden, rising and falling in quick succession. They are most troublesome and inconvenient when the patient gazes on very bright or luminous objects, or when the eye is directed upon a white surface. Sometimes they are seen in one direction only, as in the abduction of the globe. They are often consequent upon derangement of the stomach or general system[1].

---

[1] The appearances above described are probably for the most

A very frequent symptom of commencing amaurosis, is the patient's seeing every object as surrounded by a zone of variegated colours, which he compares to those of the rainbow; this zone is most commonly tremulous or undulating, and is often perceptible, even when the eyes are fully or partially closed. (*Visus lucidus, Photopsia.*) Sometimes the object is seen as enveloped in a thick cloud or mist, or as covered by a species of gauze or net-work; the *visus nebulosus,* or *reticulatus* of the old nosologists. In some rare instances, the retina is so irritable, that the patient is unable to bear the full light of day, and feels himself most comfortable in a close or darkened chamber, or when the eye is screened from the glare of light by a green shade. This symptom has received the name of *oxyopsia,* in German, *Lichtscheu.*

Double vision (*visus duplicatus*) is a frequent concomitant of amaurosis, and generally arises from some alteration in the axis of vision. Hence it is always accompanied with more or less of strabismus, particularly when one eye only is affected. Sometimes the patient, although he may

---

part referable to temporary irregularity in the internal circulation of the eye, from a plethoric state of the vessels. Some curious facts, taken from Richter, will be found in illustration of this in Cooper's Surg. Dict. edit. 5. p. 22. Among others it is stated, that a plethoric person who held his breath and looked at a white wall, was conscious of discerning a kind of net-work, which alternately appeared and disappeared with the diastole and systole of the arteries. Mr. Guthrie, with Demours, is inclined to suppose some alteration in the humour Morgagni. EDITOR.

very readily discover the smallest objects, is deceived in their colour, or sees them all of one particular tint, *(visus coloratus.)* Professor Beer relates the case of a person who saw every thing around her as through a yellow coloured glass, yet there was not the slightest appearance of jaundice in the constitution. Others look upon all colours as a shade darker than they really are; white appears to them grey, brown, black, &c. It is not unusual for amaurotic patients to observe all objects as distorted or crooked; thus the flame of a candle appears rent or torn, or bent in its middle[1].

Amaurosis may take place suddenly or slowly. The blindness may be transitory, permanent, or intermittent. The first is most generally owing to some gastric irritation, as worms in the stomach, sordes in the primæ viæ, &c. to repelled cutaneous diseases, or suppressed fluxes, and is removed as soon as the causes which have given rise to it are attended to, or the suppressed discharges again restored.

Sometimes amaurosis assumes the intermittent type, coming on in regular paroxysms, every second, third, or fourth day, or even at longer intervals of weeks and months. Richter relates the case of a man who became blind every third day, precisely at noon. *Hemeralopia* and *Nyctalopia*, so common in the warm tropical climates, may be ranked as a species of intermittent blindness *.

---

[1] Professor Beer considers the distortion of objects unfavourable in prognosis, and referable to a cause seated in the brain itself. In connexion with the derangement or imperfection of vision producing a delusive appearance of colours, see two papers by Dr. Nicholl, the one in the 7th, and the other in the 9th Vol. of Med. Chir. Trans. They contain cases of hereditary affection of this sort, and were not symptomatic of amaurosis. EDITOR.

Amaurosis may exist as a pure local affection of the nerve or retina, or as combined with some other disease of the organ or general system. To the local complications of amaurosis belong cataract, glaucoma, cirsophthalmia, exophthalmos, atrophy, paralysis of one or more of the muscles of the eye-ball or lids, ophthalmitis, contusions of the eye and its vicinity, &c[1]. Among the general may be enumerated, diseases of the nervous system, hydrocephalus, organic diseases of the abdominal viscera, worms, diseases of the brain and cranium, &c. Amaurosis has been known to alternate with the discharge from old ulcers; sometimes it is attendant on the state of pregnancy.

Amaurosis, from whatever cause it may arise, or however combined, is generally characterized by a very dilated state of the pupil, which is not affected by any degree of light that is made to fall upon the retina. Sometimes the pupil is extraordinarily contracted. It seldom maintains its

* For a more particular description of these diseases, the reader is referred to an interesting paper of Mr. Bampfield, in the fifth volume of the *Medico-Chirurgical Transactions*.

---

[1] A complication not least demanding the vigilance of the surgeon, is incipient fungus. EDITOR.

circular form under these changes, but is more or less irregular or angular, so as to resemble in some cases the pupil of various animals. It has rarely the clear appearance of the sound or healthy eye, but presents a greyish or dark green hue, resembling the humours in the eye of the horse. A more common phænomenon in amaurosis is a white or greenish yellow spot, apparently in the fundus of the eye, and a little to one side of the visual axis, having a splendid disc, resembling the tapetum of the sheep, or the coloured choroid of fish. The causes of this point are involved in obscurity; it is by no means a constant appearance in amaurosis*.

The pupil is not only altered in shape and size, in the various species of amaurosis, but also in its position, as it respects the iris or globe of the eye. It is most commonly found drawn towards the internal and superior portion of the eye, seldom or never in a direction outwards or downwards.

The iris in general is very sluggish, or absolutely motionless; sometimes expanding on the admission of light, in other cases it is found to preserve its usual irritability, and in a few rare instances, is seen to contract and dilate with more rapidity than in ordinary health[1].

* Travers' *Synopsis of the Diseases of the Eye.*

---

[1] Mr. Travers suggests an explanation of this circumstance, on the supposition that the eye is sound, and the cause of the amaurosis remote or external to it, the iris continuing to act by a sym-

Amaurosis is generally preceded or accompanied by severe pain in the orbit or neighbouring parts; most commonly it is confined to the eye-brows or temples, shooting occasionally into the orbit. Sometimes this pain is of an intermitting kind, coming on at stated times of the day or night, and continuing for several hours. Mr. Travers conceives this to be *tic douloureux,* affecting one or more of the orbitar branches of the fifth pair of nerves, and has seen it relieved by arsenic when opium had failed [1]. The pain usually diminishes as the disorder advances, and ceases altogether when the amaurosis is complete. The patient often complains of unusual dryness of the eye, of a sensation as if the globe of the eye were too

---

pathy independent of the brain. "Thus," he says, "in a case of circumscribed tumour compressing the left optic nerve, immediately behind the ganglion opticum, although the blindness was complete the iris was active. In two young ladies, in whom the eyes, as in the former case, were perfect, and the blindness complete, the iris was even vivacious, and there was the strongest presumptive evidence from the symptoms, that the amaurosis was in the cerebral portion of the nerve." Synopsis, p. 188. EDITOR.

[1] The severity of suffering induced by this affection, which I have more commonly noted in the frontal nerve, is such, as to claim the very anxious attention of the surgeon. It is of most frequent occurrence in bilious and rheumatic patients and in nervous women. I have seen it co-existent with great acidity in the stomach. The administration of half a drachm of muriate of ammonia in camomile tea, or some aromatic distilled water, every four or five hours, is attended with striking advantage in many instances. In some cases, the substitution of the carbonate of iron affords speedy relief. They are both most valuable medicines, in these and similar affections of the facial and dental nerves. ED.

large for its socket, or as if it were pressed forward by a collection of fluid from behind.

Amaurosis is frequently accompanied with symptoms of general congestion of the brain, or of partial or general palsy. Such are a flushed face, occasional giddiness, a tense pulsating pain of the whole head, tinnitus aurium, loss of memory, an uneven protrusion of the tongue, palsy of some of the muscles of the face, an unsteady tottering gait, and general impaired motion of the body. When this paralysis invades the other senses, there is little hope of recovery, and we may generally anticipate a very unfavourable issue of the disease.

Amaurosis is not peculiar to any age or sex; it occurs most generally, however, about the middle period of life. Children are by no means exempt, though not so liable to the disease as the adult; and cases are on record of its having been found congenital. Persons with dark coloured eyes are more predisposed to the disease, than those in whom they are of a lighter colour. In those so predisposed, the affection is often brought on by the suppression of any accustomed discharge; as that from old ulcers, from hæmorrhoids, &c., or it is vicarious with cutaneous and other affections[1]. A certain predisposition is often given to amaurosis by the state of pregnancy, or other causes tending to produce congestion in the brain.

---

[1] Beer records the existence of an hereditary amaurosis attacking females even to the third generation, and the cessation of the menses. They had not born children, but those who had been mothers, escaped the affection. EDITOR.

Among the exciting causes of the disease, may be reckoned all undue exercise of the brain or eye. Hence it is that we see amaurosis so frequent in persons of studious habits, and in those professions which require the constant exercise of the eye upon minute and glaring objects; or in such as habitually employ strong magnifying glasses to assist their vision. Hence too, the frequency of the disease among shoemakers, tailors, clerks, &c. It is often caused by the eyes being exposed for any length of time to the light reflected from snow or sand. Thus it is not an uncommon disease in the cold arctic regions [*], as well as in the milder torrid or equinoctial zone. It is excited in many persons by looking upon the sun or moon, as in sailors, who are much in the habit of employing nautical glasses in their observations at sea. In some instances, it has been caused by the sudden glare of lightning.

Long confinement in dark or gloomy cells has occasioned an attack of amaurosis. Hence it was observed on the destruction of the Bastile, that many of its inmates, who had been confined for a great number of years, left it almost totally blind[*].

---

[*] Vide Ellis's *Voyage to Hudson's Bay*. Richter's *Anfanggrunde der Wundarzneykunst*.

[†] Vide Le Mercier's *Tableau de Paris*.

Amaurosis may frequently be traced to such causes as act more directly in debilitating the whole constitution, or the eye in particular. Thus it is often concomitant on the low state of nervous fever, or it is consequent upon concussions of the brain, spinal marrow, or of the organ itself. It is frequently excited by the depressing passions when too much indulged, or it is the effect of long continued discharges, as cholera, dysentery, profuse salivation, hæmorrhoids, uterine floodings[1], the suppuration from extensive ulcers, &c. Under this head may likewise be mentioned, the amaurosis from onanism, from excessive venery, and that induced in females, and especially among the poor, from the over-long suckling of infants, the *amaurosis lactantium.*

Certain articles of diet have been known to produce amaurosis. Professor Beer saw one case, in which the disease was induced several times in the same individual, by the drinking of chocolate. The same gentleman remarks, that a great number of persons in Vienna were afflicted with a kind of weak sight, nearly allied to amaurosis, when, in consequence of the prohibition of coffee into the Austrian dominions, the article of chicory was substituted. Certain narcotic substances when exhibited for any length of time, affect the sensibility of the retina, and induce amaurosis; such are, opium, hyosciamus, belladonna, lead, arsenic, &c.

---

[1] Connected, in all probability, with constitutional determination of blood to the eye, under similar circumstances, are some cases of rapidly destructive ophthalmitis after parturition, recorded in the 13th Vol. of the Med. and Chirur. Trans. EDITOR.

Another cause of amaurosis, little noticed by writers on this disease, is a deficiency or total absence of the pigmentum nigrum, lining the bottom of the eye. In this form of the disease, there is commonly a tremulous or vibratory motion of the globe; the admission of light produces great uneasiness, and the vision is rendered extremely imperfect. It commonly occurs in advanced age, but is sometimes met with after continued fever, in the last stage of phthisis pulmonalis, and in atrophical children*. It does not admit of any cure, but the vision is considerably aided by cylindrical shades, goggles, or any other contrivance fitted to absorb light.

Amaurosis is sometimes caused by a defect of focal powers in the eyes, or an incapacity of adjusting the focus of the organ to the distance of objects †. Persons thus affected, direct their eyes for a short time to objects, when they are of a sudden rendered dim; by rubbing them a little with the finger, the object again becomes clear; on directing their attention to some more distant object, the first is seen again distinct. If they continue these efforts too long, the vision becomes confused, and there is a sensation of weariness or fatigue of the organ, similar to that which is produced in the healthy eye from long and continued exertion.

---

* Vetch. Op. cit. p. 144.

† Travers' *Synopsis*, p. 184.

Amaurosis is frequently occasioned by a blow or wound upon the eye-brow. This is supposed to be caused by some injury done the frontal nerve, which is said to act sympathetically upon the retina. The blindness seldom comes on until some weeks after the accident. Valsalva relates the only case of this kind which yielded to treatment[1].

A diseased secretion from the glands of the lids, or a too irritable state of the conjunctiva, will frequently give rise to a weakness and indistinctness of sight not unlike to incipient amaurosis.

Walter, in his catalogue, describes a case of amaurosis, which was caused by ossification of the choroid coat. Similar instances are related by Haller, Morgagni, Cruveiller, and others.

Prognosis.

Where the disease is fully formed, or the amaurosis complete, little can be expected from any plan of treatment; even those cases where we may anticipate a more favourable result, the cure is always tedious, and seldom perfect. Amaurosis, which has formed recently and quickly is more, easily cured than that which has been more slowly developed; as in the latter case the causes are always more multiplied and obscure. Where the disease is connected with any considerable derangement in the figure and structure of the eye, it is absolutely incurable. When amaurosis affects one eye, without any cause discoverable in the organ itself, it is more than probable that the disease will, in a longer or shorter time, invade the sound eye, and proceed to the same degree as in that first affected[1]. It is an erroneous and ill-grounded opinion, that amaurosis is more easily cured, when the iris possesses its usual mobility, or the pupil is not much dilated; as it often happens that the iris shall regain its contractility, without the least improvement in the vision; or, on the other hand, the patient shall recover his sight, and the iris continue sluggish and immoveable. Where the disease does not exist to any great degree, it will often disappear from eruptions taking place on some part of the surface of the body, from the formation of abscesses about the face, head, or ears, from the return of the hæmorrhoidal or menstrual discharges, where these have been for any time interrupted.

---

[1] It is the opinion of Mr. Wardrop, that it is only under circumstances of wound or injury without division, that this form of amaurosis ensues, and that such blindness may be sometimes cured by complete division nearer the origin of the nerve. Contraction of a cicatrix, has been suggested as a source of irritation. This also is susceptible of relief by the same operation. EDITOR.

---

[1] Mr. Wardrop thinks, that when only one eye becomes amaurotic from a sympathetic affection, there is little danger of the other eye becoming blind, but that when amaurosis is produced by change in one eye, the other is in danger of becoming sympathetically affected. This observation should, however, be restricted to cases of amaurosis in one eye from local and contiguous sympathy, as, for example, from the irritation of a decayed tooth. Where, however, one eye becomes amaurotic without any other apparent cause than some constitutional derangement manifested in the production of the local affection, the opinion recorded in the text will be, probably, confirmed by the average of cases. EDITOR.

TREATMENT.

All the remedies which have been employed for the cure of amaurosis, may be divided into *general* and *local*. Among the former of these may be classed emetics, which are given either to excite full and free vomiting, or to keep up a gentle but constant nausea of the stomach. This latter practice, which was at one time so much in vogue, is now very justly abandoned. It is more especially injurious in such persons as labour under impaired and deranged state of the digestive organs. Richter, who was a great advocate for the emetic plan, relates the case of a priest, who became suddenly blind in a fit of passion, but was restored immediately by the exhibition of an emetic. Where the disease is accompanied with sordes of the stomach, or great sense of weight and oppression about the scrobiculus cordis, a vomit may sometimes prove beneficial, but its use should be restricted to such cases only. It is, in general, more advantageous to resort to purgatives. They are more especially indicated where there is much disorder of the primæ viæ, where the disease is attended with habitual costiveness or congestion towards the brain*. Mercury, in the hands of the cautious and experienced practitioner, is a valuable remedy in amaurosis; but when employed empirically and indiscriminately, as is too often the case, proves no less injurious and pernicious. It is difficult to discriminate with any great precision the cases of amaurosis to which it is most applicable. Where the disease is connected with a syphilitic taint of system, with a schirrous state of any of the abdominal viscera, or with an impaired state of the stomach and

---

* The following formula was much celebrated by Schmucker in the cure of amaurosis:—

$$\left.\begin{array}{l}\text{℞. Gum. Sagapen.}\\ \text{Galban.}\\ \text{Sap. Venet.}\end{array}\right\}\text{aa. Dr. j.}$$

Rhei opt. Dr. unam et semis
Antimon. tartariz. gr. xvj.
Suc. liquirit. Dr. j. ft. Pil. gran. unius.

The patient to take fifteen of these pills morning and evening, for the space of four or even six weeks.

Richter prefers the following:—

$$\left.\begin{array}{l}\text{℞. Gum. Ammoniac.}\\ \text{Ass. fœtid.}\\ \text{Sap. venet.}\\ \text{Rad. valerian. s. p.}\\ \text{Summit. arnicæ.}\end{array}\right\}\text{aa. Drachmas duas.}$$

Antimon. tartarizat. gr. xviij. ft. Pilulæ granorum duorum.

The patient to take fifteen of these pills three times daily for some weeks.

bowels, the blue pill will be found an excellent remedy. I have seen much advantage from mercury or calomel, in those cases of incipient amaurosis which come on with some deep seated pain in the head or orbit, more particularly where this pain is found to intermit; for we shall generally perceive the paroxysm to come on in the evening or in the course of the night, and after each return of pain, the vision will be more impaired.

Stimulants, at one time so much resorted to for the cure of amaurosis, are, in general, extremely pernicious. The use of phosphorus, of late so highly extolled throughout Germany, is now fast declining. The different preparations of the arnica montana are much commended in amaurosis. This plant is most commonly given in the form of an infusion of the leaves or flowers, sometimes in the form of extract.

In addition to the remedies now recommended, it will be necessary in most cases of amaurosis to resort to local means. Of these the most important are leeches and blisters. The former may be applied directly to the lower eye-lids, the temple, or behind the ears. They are chiefly indicated in those cases of amaurosis, connected with congestion of the brain, or where there is reason to suspect deep seated or chronic inflammation in the inner tunics of the eye *. Their good effects

---

* Where symptoms of general plethora are present, it will be necessary to premise one or more general bleedings; and the evacuation should be carried to such an extent as to induce syncope.

will be much assisted by the use of blisters to the nape of the neck or behind the ears, or the tartar emetic ointment, so employed as to keep up a constant eruption about these parts. Sinapisms being more transient in their operation, are never so advantageous as blisters.

Errhines, so much commended by the older writers on the diseases of the eye, are seldom employed with much benefit, and are only advisable in those cases of the disease which are accompanied with unusual dryness of the nares, or have originated from suppressed coryza. If the tarsi are diseased, and there is a vitiated secretion from the meibomian glands, causing unusual dryness of the organ, a wash of the sulphate of zinc, with the diluted citrin ointment, or the thebaic tincture, will prove a very useful application. To the topical remedies for amaurosis belong also the various stimulating or irritating substances applied in the state of vapour or collyria, directly to the eye, or rubbed into the brow; electricity, galvanism, &c.

Mr. Stevenson, in a late work on amaurosis, has cited several cases, in which *dry cupping* of the eye has exerted a very beneficial effect in the cure of the disease.

CHAPTER V.

DISEASES OF THE CRYSTALLINE HUMOUR.

Cataract.—Suffusio Oculi.

The term cataract is given to every kind of opacity having its seat between the vitreous humour and iris, and which, preventing the rays of light entering the eye from reaching the retina, causes a greater or less degree of indistinctness in the vision. This opacity may be directly within the lens or its capsule, or without this body, and between it and the uvea. When the disease occurs in the first situation, it is called a cataracta *vera,* and in the latter, cataracta *spuria,* originating in the effusion of lymph, pus, blood, or some other extraneous matter within the pupil.

The cataract is usually of very slow formation, and in its incipient stage is easily confounded with amaurosis. Professor Beer has pointed out the following diagnostic marks, by which the two diseases are in most cases very easily distinguished. In *cataract,* all objects, especially white ones, appear to the patient involved in a thin dirty mist or cloud; the decrease of the vision is in an exact ratio to the visible opacity behind the pupil. This opacity is first observed in the centre, seldom in the border of the pupil. As the dimness increases, a blackish ring is seen around the margin of the pupil, caused by the shadow of the iris upon the lens [1]. This ring is always more conspicuous in light than dark coloured eyes. The opacity commencing most commonly in the centre, the vision of those objects immediately opposed to the eye is first obstructed, while those viewed laterally are seen with tolerable distinctness; hence the patient sees better in the twilight, when the pupil is dilated, than in the bright glare of day, and his vision is considerably aided by the use of convex glasses. The flame of a candle appears to the cataractous patient, surrounded by a whitish circle, which widens as he retires from the light; in the more advanced stage of the disease, he no longer sees the flame, and can merely judge of the distance at which it is situated. The incipient cataract does not affect the motions of the iris.

---

[1] It is important to distinguish this circular shadow of the iris from two other black rings, which are noted in cataract; the one formed by a dark projecting edge of the uvea, and more visible where the iris is light coloured, and pressed forward by large lenticular cataract; the other, in the opinion of Mr. Travers, indicating a transparent state of capsule, and a defined nucleus of opacity in the lens itself. In this latter case, the dark transparent rim is seen on dilatation of the pupil by belladonna. Where the lenticular opacity is diffused, this sign is wanting. Med. Chirur. Trans. 4. p. 286. Mr. Guthrie further speaks of a case in which, from some defect of organization, a growth from early life, a soft and bluish white cataract, with a striated capsule, will often be observed when the pupil is fully dilated, to be seated on the vitreous humour, and surrounded by a black transparent ring, the consequence of the deficiency of size of the lens and its capsule. Lectures on Operative Surgery of the Eye, p. 209. EDITOR.

In *amaurosis*, on the other hand, the cloudiness is seen at a great depth behind the pupil, appears concave, and is rather of a greenish or reddish hue. The diminution of sight bears no proportion to the visible opacity; the pupil is more or less dilated and angular, the iris sluggish, the cornea loses the transparency and brightness it possessed in the healthy state. The increase and diminution of vision do not depend, as in the cataractous patient, upon the degree of light, or upon the greater or less expansion of the pupil, but on certain causes affecting the sensibility of the retina. Thus, violent emotions of the mind, as joy and grief, the indulgence of a stimulating meal, or a glass or two of wine, will cause a temporary increase of vision; whilst it is diminished by long fasting, night vigils, anxiety of mind, and all such causes as tend to debilitate the general system. The flame of a candle, viewed by the amaurotic patient, as well as the zone which encircles it, is not white as already described, but exhibits all the different colours of the rainbow. Glasses are of no assistance to the patient at any period of his disease; and he distinguishes with as much difficulty the objects which are placed laterally, as those immediately before him[1].

---

[1] "I have seen so many cases of commencing amaurosis, where the patients saw better to one side than in front, that I now put

Cataract may be divided into several varieties or species. The English writers upon this disease have, in general, enumerated but four: numerous others are noticed by the Continental surgeons, the most important of which I shall likewise notice.

I. *Cataracta Dura.*—*Hard Cataract.*—Mr. Pott has very justly observed, that in this variety of cataract, the lens is smaller than in its natural state; hence, the patient is enabled to see large objects tolerably well, particularly in the morning and evening twilight, when the absence of the strong light of day permits the pupil to expand. The same dilatation may be brought about artificially, by the application of belladonna. The patient produces the same effect, by overshadowing the eye with his hand, when he wishes to view any object more distinctly. The iris being perfectly free from the pressure exerted when the cataract is of a larger size, preserves its usual irritability. The posterior chamber is enlarged. The lens is of a dull whitish, or horn colour; sometimes of a yellow reddish tinge, which causes all objects seen by the patient to appear of the same hue. The centre, or nucleus, is generally deeper coloured, as well as more firm, than the circumference. We may lay it down as a ge-

---

no faith in this symptom, as diagnostic of cataract.—Dr. Monteath, Weller's Manual, vol. i. p. 248.

Some valuable collective observations on the diagnosis of incipient fungus may be conveniently found in Anderson's Foreign Quarterly Journal, 4. 167. EDITOR neral rule, that all cataracts occurring at an advanced period of life, without previous disease, are hard. There are, no doubt, some exceptions to this rule; and as it is not uncommon to meet with the perfectly hard cataract in children, there are not wanting instances of its being found fluid in old persons. If the opacity be seated purely in the lens, its progress is very slow; and as the disease becomes more advanced, a black ring, which is nothing more than the light of the uvea reflected from the darkened capsule, will be seen to surround the internal margin of the iris. In such persons as have the iris of a lighter or greyish colour, this ring is, of course, less perceptible[1]. This variety of cataract may exist a great number of years without the capsule becoming in the slightest degree affected.

II. *Cataracta Caseosa seu Gelatinosa.*—We have seen in the cataracta dura, that the lens is shrunk and diminished in size. In this species, on the contrary, it is much enlarged; hence the iris is pressed forward nearly in conjunction with the cornea, and the anterior chamber of the eye is almost destroyed[2]. For the same reason, the iris is rendered sluggish in its motions, and is commonly thickened too in substance. The patient's vision is nearly or completely obscured; nor is at all improved in the twilight, nor by the application of belladonna, nor other narcotic substances, which have the effect of dilating the pupil.

---

[1] See Note 1. p. 156.

[2] Some observations by Mr. Travers, Med. Chir. Trans., vol. v., p. 404, are strongly illustrative of this point. Mr. Travers, under such circumstances, resorted to dislocation of the lens into the anterior chamber by puncture posterior to the iris, and then removed it by section of the cornea, a compound operation to which Mr. Guthrie strongly objects, with the exception of some particular circumstances. See Lectures, p. 356. EDITOR.

In this variety of cataract, the two surfaces only of the lens may be rendered caseous, whilst the centre or nucleus preserves its usual consistency, or both may be similarly affected; the first most commonly happens. The opacity is never uniform, and the lens appear always more or less spotted or flocculent. If the nucleus be solid, the cataract is generally stellated. The black ring encircling the lens, which we noticed in the first species, is wanting in this variety.

III. *Cataracta Lactea seu Morgagniana.*—The lens in this variety, is unequally clouded; darker in some places, and more transparent in others. These darker coloured spots or flakes may be observed to shift their position and alter their form, by rubbing the eye, or moving it about rapidly in the orbit. If the eye be kept any time at rest, there may be observed two very distinct layers of fluid; the upper of a much brighter colour than the lower. These instantly mix again, and vanish by shaking the eye or head violently. The colour is then a pale white, approaching to that of skimmed or thin milk; hence, it has been denominated lactea. The iris is sluggish, and oftentimes driven forward, so as to present a convex surface. The congenital cataract is generally, though not always, of this kind.

Professor Beer supposes the cataract lactea, to be caused, in many instances, by the action of certain gaseous substances upon the eye, and particularly by those gases evolved by the action of acids in the oxydation of metals. In his lectures, he relates an instance of an elderly woman, the wife of a goldsmith, in whom a cataract formed in the short space of a few hours; and he was obliged, from the importunity of the patient, to operate the succeeding day. As soon as the capsule was opened, a quantity of milky gelatinous matter issued out; the lens, which was perfectly transparent, was extracted by means of a needle, and a very slight pressure exerted upon the eyeball.

IV. *Cataracta Capsularis seu Membranacea.*—This opacity, as the name implies, is seated in the capsule surrounding the lens. The anterior or posterior capsule, or both, may be obscured *. In the latter case, the vision is completely destroyed, nor is it much improved by the application of narcotic substances. The opacity seldom commences in the centre of the pupil, but more generally from its margin, in the form of small shining spots or stripes; and hence it is, that even in the most mature state of the cataract, the opacity is never uniform[1]. It seldom exists any length of time before the lens becomes affected. If the anterior capsule be alone opake, the cataract will be seen much more convex than usual; this membrane, being at the same time much thickened, lies close behind, or even in contact with the iris, so as to render the latter almost motionless. If the posterior be the seat of affection, the cataract will be seen lying deep within the eye, presenting a concave surface. As this species of cataract is frequently the result of inflammation of the neighbouring parts, propagated to the capsule, we often find this membrane not only united to the lens, but strongly adhering to the membrana hyaloidea posteriorly.

---

* It is easy to understand how the one surface may be affected without the other, from the different sources whence they receive their nourishment[1].

[1] See Scarpa, by Briggs, p. 36 the posterior convexity of the capsule is supplied by the extreme branches of the arteria centralis, the *anterior* (which is also much thicker) by the vessels of the vitreous humour. EDITOR.

The same inflammation may be propagated to the lens, by giving rise to what is denominated the *cataracta capsulo-lenticularis.* As the capsule is generally much thickened and disorganized in this species, the opacity is seen to take on a variety of forms, which has given rise to the numerous and frivolous distinctions of cataract among the older writers. Thus, we have the *cataracta marmoracea, fenestrata, stellata, centralis, punctata dimidiata,* &c.

---

[1] The mature state of this cataract may perhaps be less uniform. I have seen the capsule in both eyes of a scrofulous patient, about 14 years old, so uniformly and so slightly misty in its whole extent, that it would have been difficult to pronounce an opinion of cataract, had not one very slight spermaceti point in one eye, revealed the nature of the affection. The vision was greatly impaired in both eyes. The disease, although only incipient, received no benefit from slight mercurial action. EDITOR.

A more important variety of this catract, is the *cataracta capsulo-lenticularis cystica.* This is characterized by its snow-white colour, and the various positions it is seen to assume within the pupil, from the different directions given to the head. It appears to float almost loose within the posterior chamber, sometimes projecting in a spherical form, nearly without the pupil; at other times, sinking deep behind the iris, so that the upper part of the pupil, which presents a lunated appearance, from the circular form of the cataract, is perfectly black and clear, and the patient is enabled to read the smallest print. Sometimes this cataract has a tremulous or undulatory motion in the pupil, and this has given origin to the terms, cataracta *tremula* and *natatilis.* This variety of cataract is generally caused by the sudden concussion of the head or whole body, or by contusions of the eye; and it is more than probable, that the capsule is in this manner separated from its attachments.

Another variety of the mixed cataract, is the *cataracta arida siliquata,* so called from the dried and husky state of the capsule. This disease is most common in infants, and hence it has obtained the name of *congenital* cataract. It is seldom, however, born with the child, but generally arises some days or weeks after birth; and is owing, no doubt, to exposure of the very tender and susceptible eyes of the infant to the too vivid glare of the candle or sun's light. It is sometimes seen in the adult, in consequence of blows or concussions of the eye, and in these cases is commonly attended with amaurosis. Where cataract occurs in infants, the lens is partially or totally absorbed, or appears broken and divided into a number of distinct fragments behind the pupil. It is of a whitish pearl colour, and is seen at a considerable distance from the iris. From the small size of the cataract, it is seldom that the vision is entirely destroyed. The iris maintains its usual irritability, and contracts or dilates as in ordinary health; excepting in those cases where, from previous inflammation, it has united in one or more parts with the capsule.

A third variety of the capsulo-lenticular cataract, is the *cataracta capsulo lenticularis, cum bursa ichora continente,* first described by Schmidt and Prochaska, and afterwards more fully treated of by Professor Beer. This species is of very rare occurrence, and is characterized by the dusky orange colour of the lens, the sluggish state of the iris, and the diminishing extent of the posterior chamber; occurring most commonly in persons of a weak or cachectic constitution. The sac containing the matter is generally seated behind the lens, and escapes with it as soon as the capsule is opened in the operation.

The last variety of cataract, worthy of notice, is the *cataracta choroidalis* of Beer, or the *arborescens* of Richter. This is always the consequence of violent contusion of the eye, whereby a small portion of the tapetum of the uvea has separated and lodged upon the capsule. Unless the eye be examined very carefully in different lights or positions, or with the microscope, this detached portion of the uvea may escape the attention of the surgeon. In a few days it is more perceptible, and the lens and capsule are observed to become opake. Inflammation coming on, the uvea is united to the capsule, the iris is rendered sluggish, and the vision is very soon entirely destroyed.

A more important distinction, and one which it becomes every surgeon to attend to, before forming his prognosis, is the state of simplicity or complication of the cataract. The disease is termed simple, when it is accompanied with no other morbid alteration of the organ of vision which can effect its functions, or no complaint of the general system; and complicated, when there is superadded to the opacity of the lens or its capsule, some other local or general affection.

It would be impossible to notice all the varieeties of complication, which can thus occur. It will be sufficient, perhaps, to enumerate merely the most important.

Cataracta Accreta. This is always the result of inflammation in the capsule and neighbouring parts; during which, a quantity of coagulable lymph is thrown out, so as to unite the anterior capsule with the iris, or the posterior with the membrana hyaloidea. When this latter circumstance took place, (which can only be known after the operation,) the cataract was termed by the old writers upon the disease, *elastica*, from its constantly rising again after the needle, when they attempted to depress it. The union with the iris may be easily recognized by the angular appearance of the pupil, or by dilating this with the belladonna[1]. Most commonly, the inner membranes of the eye have suffered so much from the same inflammation, that the patient is unable to distinguish light from darkness; and in this state of the disease, any operation must, of course, prove fruitless.

---

[1] It is well to recollect the fallacious darkness of pupil which may occur under the following circumstances:—A woman applied to Mr. Guthrie, after an attack of inflammation of the iris, at the termination of which, belladonna had been applied to dilate the pupil, which it would appear to a casual observer to have done; but on a more minute inspection, it was evident, that although the pupil was of a tolerable size, as far as regards the edge of the iris, which was also immoveable, yet in retracting, it had left behind it the pigmentum nigrum, attached to a layer of coagulable lymph, which still closed the pupil. Lectures on the Operative Surgery of the Eye. p. 450. EDITOR.

Cataract is sometimes complicated with *glaucoma;* and this is readily distinguished by its peculiar sea-green colour. The lens is enormously enlarged, projecting without the pupil into the anterior chamber; the iris is sluggish; the pupil very much dilated and drawn, as it were, towards the inner canthus; the patient is completely blind; the whole eye is varicose, and very hard to the feel. The disease is accompanied throughout its progress, with violent and incessant pain of the head.

Amaurosis is not unfrequently combined with cataract. A widely dilated pupil and immoveable iris were, at one time, looked upon as infallible criteria of this complication; but these symptoms are often caused by nothing more than the mechanical pressure exerted by the lens, and are by no means constant and necessary symptoms of amaurosis[1]. If, however, there be connected with these appearances of the iris evident atrophy of the eye, or if the patient be unable any longer to distinguish light from darkness *, we may pro-

* The surgeon should be cautioned, however, never to rely in any instance, for this information, upon the simple *ipse dixit* of his patient, but to examine most scrupulously for himself. Ask a person labouring under blindness from cataract, or any other cause, whether he has any sensation of light, and he will answer most unequivocally, "No! I am stone-blind." Yet direct this same individual to fix his eyes upon the window, the fire, or any lumin-

---

[1] On the other hand it has been already noted, that the mobility of the iris, even vivacious, may co-exist with amaurosis. In examination, the opposite eye should be closed and covered, to prevent any associated action of the iris in the eye under examination. EDITOR.

nounce with certainty, there is amaurosis. The diagnosis is more difficult where the latter commences, when the cataract is already mature, and the difficulty is increased, where the patient is unable to give a distinct account of the origin and progress of his complaint. Pain in the orbit or neighbouring parts, should always excite our suspicion, as cataract is generally unaccompanied with any particular pain. The same may be said of the sensation of tension or pressure, which the patient sometimes experiences towards the root of the nose, or in the supra-orbitary ridge[1].

Other local complications with cataract are much more readily distinguished. Such are, *staphyloma, hydrophthalmia, leucoma, ulcers of the cornea, pterygium, psorophthalmia,* and the various species of inflammation.

Cataract may be complicated with some more general affection. It is not unfrequently associated

ous object, and intercept the rays of light, by moving the hand, or any opake body between the eye and object, and he can distinctly tell you.

---

[1] In connexion with the subject of diagnosis, mention of the black cataract must not be omitted. "When the lens," says Mr. Guthrie, "is of a dark or black colour, it has been mistaken, and the disease supposed to be amaurosis: the diagnosis will be found in the lively motions of the iris, the absence of the brilliancy of the black colour of the pupil in its natural state, and by the figure of the person examining the eye not being reflected from it. The history of this case ought to induce suspicion; and if the pupil be dilated, I conceive all doubt must be cleared up, and the disease be distinctly evident." Lectures, p. 231. See also Mr. Travers' Synopsis, p. 210.; and Briggs' Translation of Scarpa, p. 320. ED.

with gout, scrofula, syphilis, herpes, &c., and in some of these cases, we may very much retard and often arrest the disease in the lens, by the usual remedies for these complaints[1].

The *Proximate Cause* of cataract is still involved in much obscurity. In general, it may be considered as the result of inflammation in the lens or its capsule. Although the precise connexion between these two is not as yet completely ascertained, there can be very little doubt that, like all the other parts of the body, they are nourished by blood-vessels. Professor Walther, of Berlin *, after describing very minutely the appearance of the capsule under inflammation, as seen through a powerful microscope, affirms to have discovered likewise, the more delicate ramifications of vessels in the body of the lens itself. These he supposes, however, to be merely the effect of disease, and not to exist at all in the natural or healthy state of this body. As the capsule, or uvea, in an inflamed condition, very frequently shoot forth vessels from one to the other, so he thinks the former may even extend its ramifications into the lens. Although this explanation may very well serve to suit the doctrine of imbibition, which the Profes-

* Vide *Adhandlungen aus dem Gebiete der praktischen Medicin.* Landshut, 1810.

---

[1] It would be difficult to prove the retardation or arrest of a disease, of which we can neither predict the natural progress, or anticipate the form or extent. It is safer to admit our present ignorance on the subject of therapeutics. EDITOR.

sor advocates in the commencement of his paper, it is more rational to believe these vessels existed prior to all disease, and were only rendered visible in the inflamed state, from their admitting the red particles of the blood, instead of the transparent fluid they carried in their natural condition. As this gentleman has been the first to throw any light on the true pathology of cataract, and has most satisfactorily proved its origin, in general, from inflammation, it is a little surprising he should have adopted the doctrine of imbibition, when his whole reasoning is so much better reconciled with that of nutrition by means of vessels. Hence, too, he is led to suppose, that inflammation of the lens is always preceded by inflammation of the capsule.

Supposing it then to be granted, that the lens is nourished, like all other parts, by blood-vessels, there can be no difficulty in believing them subject to the same diseased actions, and that this body is just as competent to take on inflammation, as any other organ or structure of the whole frame. A number of phenomena, which accompany the first formation of cataract, tend to prove, that a slow chronic kind of inflammation is at the same time going on in the deeper seated parts of the eye. Hence, that painful susceptibility to light, which affects all persons, more or less, in the commencement of this disease. Scarpa already takes notice of the greater convexity of the lens in the first development of cataract; and this circumstance can only be accounted for from the swelling, or increased volume, which necessarily results from inflammatory action[1].

It is a fact well known to the best practical oculists, that inflammation is much more liable to succeed to the operation for cataract, when this is undertaken in a recent stage of the disease, than where it is delayed to a remoter period; and this may be one reason, perhaps, why the ancients operated only in what they termed the ripe state of the disease. This observation fully agrees with what is witnessed in other structures of the body, under a state of inflammation. There is scarcely a single disease which is not capable, by metastasis, of producing cataract. Instances are on record, where it has been caused by repelled itch, suppressed hæmorrhoids, menses or blennorrhagia; or by gout, syphilis, &c. How it is that such metastasis takes place, whether, as the ancients supposed, some morbific matter is removed from one part to the other, or it is owing merely to a certain consensus of action between the different parts of the body, we are unable to explain: so much is known, that wherever this change takes place, the same sort of action ensues in the organ secondarily affected, so far as this is compatible with its structure, as occurred in that primarily diseased. Thus we see erysipelas of the face, or the eruption in scarlet fever, suddenly transferred to the brain, and inflammation of its membranes is the consequence. It is not to be understood, that these metastases are always purely inflammatory, something specific, no doubt, is superadded in many cases to the inflammation; and this may account, perhaps, for the varieties witnessed in cataract.

---

[1] This development is greater in lenticular cataract, succeeding concussion or other local injury, without wound of capsule, and of a glaucomatous character. EDITOR.

The disease, however, is not always preceded by inflammation. Thus, that species which occurs in very advanced age, may be ascribed rather to the rigidity or want of tone in the vessels of the lens, which prevents the free circulation of fluids through this body, or causes them to be totally obstructed. Hence it is, that this cataract differs materially in several circumstances from all others. It is peculiarly hard; the lamellæ are no longer separable, as in the healthy lens, but are firmly united, and there is not the least appearance of that subtile halitus, which enveloped these lamellæ in the healthy subject. The same effect is often produced in the cornea of old persons, causing that appearance which is denominated arcus senilis[1].

We may except, likewise, from those cases of cataract produced by inflammation, such as are caused by the too intense and long continued application of light to the eyes, or by the excessive exercise of the eye itself. Whether the lens may be supposed to suffer a premature decrepitude in these instances, or whether the light acts, as M. Richerand * supposes, by oxydating this body, is a question not easily determined. The fact is, nevertheless, true: thus, cataract is very common among men of studious habits, artisans who are accustomed to work much with the microscope, bakers, cooks, smiths, &c. Petit has observed, that of three hundred patients afflicted with cataract, three-fourths of them were persons accustomed to work in the sun in a stooping posture, whilst their eyes were exposed to the vivid light reflected from the soil. It is very probable, that in these cases the habitual congestion of the head may lead to that chronic kind of inflammatory action in the lens, which eventually terminates in cataract.

---

[1] A nebulous ring, produced naturally in old age, at the periphery of the cornea, and of important consideration in the subject of cataract, as adverse to incision from the succeeding want of union by first intention. EDITOR.

From what has been said respecting the varieties of cataract may, in some measure, be explained the different results which attend upon the operation for its cure; but before describing the various modes of operating now in practice, it will be necessary to point out certain circumstances which absolutely forbid the operation, or render its success more or less doubtful. The prognosis is always unfavourable.

1. When the cataract has been preceded by

---

* Vide *Nosographie Chirurgicale*, vol. ii. p. 92.

severe and distressing pain of the head. This may even have abated for a considerable time, but it is always sure to recur immediately after the operation.

2. Where the patient has been long subject to rheumatic pains of the joints, &c. If the operation be decided upon in these cases, we should endeavour to divert the excitement from the eye, by employing sinapisms to the calves of the legs; but in no instance attempt to operate in the Spring or Autumn, as the changes of temperature at these seasons, always increase the disposition to this complaint.

3. Where there is any tendency to erysipelas of the face.

4. Where the patient has suffered in his youth from frequent convulsions, or attacks of epilepsy. Professor Beer says he has known such convulsions excited by the operation for cataract, after they had ceased for thirty years and longer. This accident has occurred to him twice in his practice; but fortunately, in both cases, after couching, so that no great harm resulted.

5. Where any particular diathesis is present, at the same time, in the system[1].

6. Where the patient has suffered under frequent and violent inflammation of the eye[2].

---

[1] For example, an impending fit of gout, or the irritation of dentition. EDITOR.

[2] Especially adverse, if recent. ED.

7. Where the patient can no longer distinguish the different grades of light and shade.

8. In all hypochondriac or hysterical patients.

9. Where the cataract is complicated with some other local affection, as amaurosis, hydrophthalmia, glaucoma *, and the other diseases we have noticed, when speaking of the various complications of cataract [1].

It is yet a disputed point among surgeons, whether any operation should be undertaken for the cure of cataract, when one eye only is affected, the other remaining sound. Baron Wenzel and Mr. Travers are decided advocates for its immediate performance. "I am satisfied," says Mr. Travers, "that the cataractous eye, if it becomes the subject of an accidental inflammation, is strongly disposed to go into amaurosis; and further, that the retina loses its vigour by the permanent exclusion of light, I speak from repeated observation of the fact. The objection to the operation, on the ground of inconvenience, arising

* The operation is not even practicable, where there is synchysis, or dissolution of the vitreous humour; for as soon as the first incision is made through the cornea, the whole of the fluid issues out, as there is no longer any membrane to contain it; and the eye is irretrievably lost. It is equally impossible to practise couching, or the breaking up of the lens, in such cases, as on the first puncture through the coats, the vitreous humour squirts out as from a syringe. The coats collapse, and all attempts to reach the posterior chamber (if any may be said still to exist) will prove of no avail.

---

[1] Inflammation is much more likely to succeed operations on recent than mature cataracts. EDITOR.

from the difference of focus of the two eyes when one only is the subject of disease, is trivial, and a consideration altogether subordinate; such a defect may always be remedied by glasses properly adjusted. In several cases of amaurosis ensuing upon cataract, I have been disposed to regard the change in consistence and volume of the lens, as productive of a destroying inflammation; in others, of partial absorption of the vitreous humour * [1]."

If both eyes be affected with cataract, and every thing promises a favourable result, the operation may be performed upon both at the same time[2]; when, on the other hand, there is any circumstance present which could render the issue at all doubtful, or there is danger of much subsequent inflammation, it is better to operate on one eye only, and wait until this has perfectly

* Op. citat. p. 313.

---

[1] This point demands further consideration. Mr. Lawrence is of opinion that the practice is not productive of advantage. Mr. Guthrie states that he has met with several instances of confused vision resulting from a successful operation, and that in one the patient wished him to destroy the sight gained by the operation: See many valuable authorities cited on this subject in Cooper's Surgical Dictionary, edit. 5. p. 310. If the cataract were constitutional, and not the result of local injury; or if the patient manifested a disposition to severe inflammation of the eyes, as arthritic sclerotitis, or other forms likely to attack both eyes simultaneously, or be propagated from the one to the other by sympathy, the objection to operation would certainly be increased. EDITOR.

[2] The only advantage is that of saving time and confinement; certainly not equivalent to the double risk of inflammation, or other excitement, as spasm, &c. ED.

recovered, before making any attempt upon the other.

From what has been said respecting the great variety of cataract, and its manifold complications, may be explained the various success resulting from the different modes of operating for its cure. Whether the disease be capable of removal by the simple power of medicine, is a question not easily decided; and until we shall have attained to some intimate knowledge of its essence, and the action of its causes, we can expect but little improvement in its mode of treatment.

There can be no doubt that cataract has been oftentimes checked in its progress, by the administration of remedies adapted to correct that peculiar diathesis of the system from which it has originated; but there is no single instance on record, where the disease can be said to have been cured, or, in other words, where the opake lens has again become transparent by such means *.

---

* It has sometimes happened, that persons affected with cataract have suddenly regained their vision, or the pupil has taken on its usual transparency, and the opacity has entirely vanished. This case can only be explained by the spontaneous depression of the lens. Boyer relates a curious instance of this kind. " An aged gentleman, an advocate, laboured under cataract in both his eyes, one of which was operated upon unsuccessfully. The other was thought by the most celebrated surgeons, to be a case not warranting any operation. He was blind twenty-five years. One day, when he was walking through the street, accompanied by his guide, he was astonished to distinguish, all at once, the different objects which surrounded him. Surprised at a thing as happy as it was unexpected, he came to the Professor and asked him to examine his eyes. The crystalline was found detached in four-fifths of its

It was at one time very much the fashion to resort to certain external and internal medicines for the cure; and belladonna, pulsatilla nigricans, æther, mercury, &c., have each in their turn received the highest encomiums. At present they are entirely laid aside, and the operation is the only means by which we calculate upon restoring again the organ to its healthy functions. Even this, notwithstanding the degree of perfection it has attained in modern times, is not in all cases practicable; in the most favourable too, so many untoward and unforeseen circumstances often occur, as to mar completely the success of the best contrived operation. This failure, no doubt, is often to be ascribed rather to the improper choice, than to any imperfection in the operation itself; and the result can never be otherwise, as long as surgeons continue to operate after one method only, to the neglect of all others. Success does not so much depend upon the extraordinary dexterity and ability with which the surgeon is enabled to perform any single operation, as upon a judicious selection of that which is best adapted to the particular case before him, and a moderate degree of adroitness in all the several modes of operating.

Before describing these various methods, it will be necessary to notice briefly a few circum-

---

superior margin, and appeared suspended merely from the inferior. It was slightly agitated on moving the head violently. The superior half of the pupil was clear and transparent, the inferior still obscured by the opake lens." Vide *Maladies Chirur.* vol. v. p. 509.

stances to be attended to previous to the operation. It was the custom formerly, before submitting the patient to the operation for cataract, not only to subject him to the most rigid diet, but to order repeated purgatives, bleedings, &c. This practice being now found prejudicial, is entirely laid aside[1]; for, by weakening the constitution, it only renders the patient more irritable, and, of course, more susceptible to the very inflammation it was intended to correct.

When the time is fixed upon for the operation, this should never be protracted to a more remote period, as this only increases the anxiety and distress of the patient.

Great care should be taken that the patient does not overload his stomach with food previous to the operation. He is frequently guilty of this excess, to prepare him for the starving plan which is to follow. Where costiveness is present, a slight laxative may be administered.

In all ancient treatises on cataract, the question is asked, what is the most proper season of the year for operating; and the answer is universally, in the Spring. Now, this is exactly the worst time; as from the frequent vicissitudes of weather, the patient is much more liable to catarrhal and rheumatic affections. It is for this reason that we give the preference to the dryest and warmest or coldest season.

---

[1] Free venæsection and rigid abstinence may be as essential to success where there is plethora and an inflammatory diathesis, as they would be adverse in gout or hysteria. It is as proper to regulate the health, as it is injudicious to disturb it before this or any operation. A few drops of laudanum may be given with advantage to the nervous and timid, previously to operation. Ed.

The operation should never be undertaken during the prevalence of any epidemic.

There are three modes of operating for the cataract now in use: *Extraction, Couching,* or *Depression,* and the *Breaking up of the lens,* or what is termed by the German writers *Keratonyxis.* The ancients, who had very crude notions respecting the nature of the disease, and supposed it nothing more than an adventitious membrane filling up the pupil, shaped their instruments and directed their efforts in such a manner, as would best enable them to tear away or destroy this film. Hence, they employ either round needles, about which they supposed they could wind this pretended membrane, or they made use of some sharp instrument, in order to cut away the small filaments, by which they believed it was united to the ciliary processes. Another invented a species of forceps, with which he might seize this membrane, and bring it altogether without the eye *. Daviel is to be considered the first who operated through the cornea with a distinct view of extracting the cataract. Although the operation was for a long time considered possible, and practised by a great number of surgeons upon the dead body, no one could be found bold enough to attempt it upon the living, until Daviel, in 1745, undertook the extraction, and with perfect success[*]. Petit, St. Ives, and others, had performed the same thing long prior to this time; and there are not wanting some who have awarded the claim of the discovery to these gentlemen.

---

* Various instruments of this kind may be seen depicted in Heister's Surgery, or in the Memoires de l'Academie de Chirurgie.

The multiplicity of instruments was the greatest objection made to Daviel's method; but this was soon remedied by the simplicity which La Faye[†] gave to the operation. Many improvements have been made upon these instruments since his time, by various French, German, and English oculists; those of Richter and Wenzel alone maintain a place in modern practice.

We shall sum up in as brief a manner as possible, the most important properties of a good knife:—

1. It should be so formed, that the incision of the cornea may be completed with a single stroke of the instrument. Its greatest breadth should, therefore, equal at least half the diameter of the cornea, not less than three lines.

2. The greatest breadth of the knife should not be too far from the point, lest this wound the nose before the cornea is quite divided.

3. The knife should be made to widen gradually and equally from the point, not too rapidly however, as this would cause it to penetrate with too much difficulty through the cornea.

---

[*] *Memoires de l'Academie*, tom. v. p. 369.

[†] *Memoires de l'Academie*, tom. vi. 304.

4. The point of the instrument must be made very sharp, and at the same time sufficiently strong; the lancet-shaped is the best form.

5. The back of the instrument should be straight and not curved; for when of the latter description, it is impossible to make the opposite wound through the cornea sufficiently high, and the incision will always turn out too small.

6. Both sides of the knife should be gently convex, as well to increase its strength, as to fill up the wound, and thus prevent the escape of the vitreous humour.

7. The cutting edge of the knife may be either straight or curved. Barth, Schmidt, and Beer's knife is straight, Himly's curved *.

In operating for cataract, the patient should be seated in a chair without a back, in such a manner as that his head be on a level with the breast of the surgeon. In this position the ope-

---

* Vide *Opthalmologische Bibliothek.* B. 3. St. 2. Wenzel's knife seems hardly to have one of the qualities requisite for a good instrument. At the same time that he made the section of the cornea, he was accustomed to dip his knife into the centre of the pupil as he passsd, in order to divide the capsule; and hence it was necessary to make use of a long and narrow knife. The Baron is said to have operated very rapidly, and to have possessed a peculiar command of himself during this operation. It is related of him, that whilst in the act of dividing the cornea upon a nobleman, the patient arose from the chair; but the Baron, not at all disconcerted, arose also, followed him around the room, and finished the section withont withdrawing his instrument.

The triangular knife of Beer is generally employed in the London Eye Infirmary.

rator sits with the greatest ease, and is enabled to see, without any unnatural motion of his body backwards or forwards, every step of the operation. All apparatus of stools, intended as any mechanical assistance to the surgeon, should be rejected. Arnemann, a German oculist, had a certain portable chair, which he carried about to all persons upon whom he intended operating. It is utterly impossible to operate in a standing position, as the surgeon, if small, must lift his arms very fatiguingly to reach the eye of his patient; or if the reverse, must bend his body in a not less uncomfortable manner. The patient also is very liable to faint under this operation; and should this occur, he falls to the ground without the surgeon being in the least able to assist him. Barth chose to operate in this position without an assistant, by fixing the head of his patient against a wall, which was lighted obliquely by a window; opening the lids with one hand and operating with the other. This scheme may no doubt answer very well, where both eyes are perfectly blind. In most cases, however, it is impracticable, from the difficulty of managing the eye-lids; and particularly where the eyes are seated deep within their sockets [1].

---

[1] The recumbent position has always seemed to me to be attended with ease and confidence to the patient, and security to the surgeon. I speak from experience of its advantages, but am happy to subjoin more important testimony from Mr. Hodgson, of Birmingham, who has lately informed me, that he constantly

Richter directed that the light should be made to fall *obliquely across the nose;* but if we were to follow him in this rule, we should be under the necessity, where both eyes are to be operated upon, of turning our patient around at each step of the operation; and this would create great inconvenience to the surgeon, as well as unnecessary fear and apprehension in the mind of our patient. It is always preferable after making the incision of the cornea on one eye, to practice the same upon the other, and not to complete at once the operation upon the first. Richter is right in directing that the light should fall *obliquely,* but whether across the nose or temples, is a matter of very little importance.

A second rule which Richter lays down in the operation for cataract is of greater weight, viz. that where both eyes are to be operated upon, *the incision of the cornea should never be practised with one and the same knife,* but that a new instrument be taken for the second incision. The reason of this is, that the knife acquires, from the aqueous humour, a dulness, which renders it unfit

---

adopts this method. Mons. Dupuytren, in speaking of the practice of the Hotel Dieu, says, "Les operations de cataracte sont faites par abaissement et au lit des malades; cequi previent les inconveniens de leur translation apres l'operation. See Ratier, Formulaire Pratique des Hopitaux civils de Paris. This latter observation is particularly applicable where, after reclination or depression, any violent motion or exertion is especially to be avoided. EDITOR.

for immediate use; by drying it with a fine towel, this, however, wears off after a few hours, and the instrument is as good as ever.

The upper eye-lid should be elevated by an assistant, with his fore and middle finger, who supports at same time the head of the patient upon his breast. The surgeon is in the same manner to depress the lower lid, permitting the fingers to project a little towards the ball of the eye. In this manner he will be enabled to check the motion of the eye inwards, as it flies from the point of the knife. All mechanical means of separating the lids, or fixing the eye, should be rejected.

The patient then being properly adjusted for the operation, and the surgeon having determined upon the choice of his knife, he is to commence his first incision, by directing the point of the instrument obliquely towards the cornea, as if to penetrate the iris[1]. Upon this first step of the operation hinges, in a great degree, its whole success. Commonly, the knife is directed in a parallel line with the iris; and hence it happens, especially in elderly persons (and these are for the most part the subjects of our operation), where the cornea is much thickened, and the anterior chamber of the eye much diminished by the absorption of the aqueous humour, that the instrument is carried for some distance between the laminæ of the cornea[1], and the section on this account turns out too small *, which requires much pressure and violence to be afterwards employed upon the iris to force the lens through the pupil, and this is often the cause of perfect closure of this membrane. The surgeon is easily satisfied that he has carried the knife through the cornea, by the shining appearance of its point as soon as it has penetrated; the part buried in the cornea being always more obscured. When it has fairly pierced this tunic, it is to be carried carefully and steadily forward, in a parallel direction to the iris, and brought out in the same manner through the cornea on the opposite side. As the eye always flies from the point of the knife, in a direction inwards and upwards, it is necessary, in order that the section be made sufficiently large, that the instrument be brought to divide the cornea about one-fourth of a line *above* its horizontal diameter. It is never requisite that the incision comprehend more than one half the cornea, though no harm can result from its accidentally being made greater. Care must be taken in this part of the operation, that

---

[1] Division too near the circumference of the cornea is attended with greater risk of prolapsus iridis. EDITOR.

* "Mon opinion est, que sur vingt yeux perdus, après l'operation de la cataracte par extraction, dix sept verroient si l'incision placée convenablement, avoit eu une ligne de plus de longueur."&c. Demours, *Traité des Maladies des Yeux.* p. 511. Paris, 1818.

---

[1] Where the incision through the laminæ is too oblique, the extent of cicatrix is unnecessarily increased. EDITOR.

the edge of the knife be not suffered to vacillate between the iris and cornea, else the former becomes entangled with the instrument, or the aqueous humour escapes.

As soon as the point of the knife has penetrated the opposite side, the surgeon should rest a moment in the operation, until that spasmodic action of the eye, which has originated from the irritation, has subsided. This action is, at times, so powerful, that the instrument is almost dragged from the hands of the operator, unless he is careful to hold it very firmly. The incision is now to be completed by pushing the knife steadily forward. Younger surgeons, for fear of wounding the nose by this motion, use the knife as a species of saw, but this is in the highest degree injurious, as the membrana hyaloidea is always torn by this action; and when the operator afterwards attempts to propel the lens, the vitreous humour escapes in its stead. They are generally guilty also of completing this part of the operation in too great a hurry. It is always the most difficult step of the operation, as the surgeon must have his attention divided between the point of the knife, lest it touch the caruncula lachrymalis, or root of the nose, and thus cause the patient involuntarily and convulsively to withdraw his head from the operator; and the edge of the knife, that it do not divide the iris which has fallen before it. The first is easily avoided, by depressing the handle of the instrument towards the temple; the second, by rubbing gently upon the cornea with the forefinger of the left hand. This speedy mode of operating has another disadvantage; the conjunctiva, instead of being divided, is torn away from its attachments with the sclerotica. It is more especially apt to occur in elderly persons, where this tunic is thicker, tougher, and more loosely attached, than in the younger subject.

Great care must be taken too, to render the incision smooth and even; for if it is at all ragged, the parts never fall into equal contact, and reunion can never take place *per primam intentionem.* The wound will always take on suppuration; the consequence of which will be an incurable cicatrix, with more or less of nebula extending around it. This may cover the whole pupil, and thus frustrate completely the operation; or it may conceal the inferior half only. Even this is a serious inconvenience to the patient; for although he may be enabled to read the finest print when placed immediately before his eyes, he will be apt to stumble over every step or stone in his walk, from his incapacity of seeing the ground.

Where the eye is very protuberant, it would be preferable to make the section of the cornea in its outer half, as practised by Wenzel. If the operation is made in the ordinary manner, the lips of the wound are very liable to overlap each other, and a large cicatrix will be the inevitable consequence. It would be of much advantage in all our operations, if the section could be made in this manner, as it heals far more rapidly than in the common mode; but this is rendered quite impracticable from the projection of the eye-lids.

The cornea being properly divided, and the eye allowed a few moments repose, our next object is the *opening of the capsule*, to give egress to the lens. Wenzel was in the habit of doing this whilst he made the section of the cornea, by inclining his knife gently backward, as soon as it had arrived opposite the pupil; but this mode should never be imitated. Others have suggested different methods of extracting the lens together with its capsule; and though experiments of this kind very easily succeed on the eyes of brute animals, we are not equally certain that the practice can be extended to man. Richter was the first to advise this practice in 1775; but it fell again into disrepute, until revived by Professor Beer *, who hoped by extracting the capsule, to avoid one of the chief and most frequent causes of secondary cataract. It may be questioned, however, whether many cases of secondary cataract, which are attributed to opacity of the capsule, are not owing rather to the effusion of coagulable lymph filling up the fossula left by the lens †.

---

* *Methode den grauen Staar sammt der Kapsel auszuziehen, &c. Wien.* 1799.

† Schmidt *über Nachstaar und Iritis nach Staar-operationen,* Wien. 1801.

The *Cystotome caché* of Lafaye, Barth, and others, for opening the capsule, is to be rejected in toto. The most simple and safe mode of proceeding, is to introduce an arched or straight needle, somewhat smaller than that which is commonly used for couching, through the section of the cornea, taking care to lift this as little as possible, dipping it down through the centre of the pupil, and making a crucial incision of the capsule. Professor Beer advises three or four parallel incisions to be made through the anterior capsule; and these crossed again by as many more, so as to cut out a number of small parallelograms (*rautenæhnliche Laeppchen.*) These, he thinks, will necessarily escape afterwards with the lens, and thus diminish very much the chance of secondary cataract. All pressure upon the eye should be removed, and care taken in opening the capsule, that we do not dislocate the lens; for if this body do not completely fill up the pupil, the vitreous humour will protrude before it, and increase very much the difficulty of its extraction.

The pupil may so contract after the first incision through the cornea, that the opake lens is no longer visible, and we are unable to proceed to the division of the capsule. This is commonly the effect of too great sensibility of the eye; and to complete his operation, the surgeon is obliged to turn the head of his patient from the light, or to darken the chamber, when the pupil immediately dilates. In this position he is to divide the capsule, for as soon as the organ is exposed again to the light, the iris contracts.

If the capsule be sufficiently divided, the lens will generally protrude soon after through the pupil, by the sole action of the eye. If, upon waiting a few moments, the surgeon should find that this reaction does not take place, or is too feeble to expel the lens, he is to assist its expulsion by pressing gently, with the arched curette, the globe of the eye, over the upper eye-lid. Should the lens still show no disposition to come forward, but rather ascend into the pupil, we may be assured there is adhesion between this body and the posterior capsule, and the latter with the membrana hyaloidea. This is an occurrence that can never be foreseen, and arises commonly where the cataract has been the result of previous inflammation. It is by no means necessary in this case, that an union exist between the lens and anterior capsule; this is most commonly found wanting. Under these circumstances, the surgeon presses upon the lower part of the eye, until the under portion of the lens becomes observable, and in that moment proceeds with the curette, through the dark lunula it forms with the iris, up between the capsule, so as to free the lens, and bring it forward.

It frequently happens, especially where the cataract is of the species denominated scabrous, that several of the opake fragments of the lens are left behind, or these are perceived shelling off, before the body has completely protruded. Most authors generally direct they should be left for absorption; it is the safest practice, however, to remove them at once with the grooved director. In many instances, it is not even necessary to introduce an instrument, as these shreds of lens are easily expelled by closing the eye, and rubbing gently with the finger upon the upper eye-lid.

When the operation is thus completed, a light compress, made of three or four folds of soft linen, should be applied to the eye, and fastened by a bandage round the forehead. The patient may be directed to sit quietly on an easy chair, or put to bed with his head somewhat elevated upon a pillow. The most abstemious regimen should be enjoined, and the light carefully excluded from the chamber in which he is confined. If pain occur in the eye on the evening after the operation, blood should be taken from the arm, or leeches applied to the temples. The union of the cornea sometimes takes place in the first twenty-four hours; more commonly, however, it requires two or more days before the adhesion is complete. No examination of the eye should be made before the fifth or sixth day, when the compress and bandage may be removed, and a green or dark shade substituted. If costiveness be present, it should be obviated by mild cathartics.

Many circumstances may occur to mar the success of the operation. The most important of these is a section of the cornea, of insufficient magnitude to admit of the easy escape of the lens. The force necessary, in this case, to bring the cataract through the wound, may so bruise or rupture the fibres of the iris, as to induce a violent degree of inflammation of this membrane, and in the end a complete closure of the pupil. To prevent these effects, it is always advisable to dilate the section of the cornea with Daviel's scissors, before proceeding to the second step of the operation, or the division of the capsule.

The point of the knife, particularly if it has pierced the cornea too near its union with the sclerotica, may become entangled with the iris; or this membrane may fall before the edge of the knife, from the sudden escape of the vitreous humour. From the difficulty of operating under these circumstances many surgeons have advised its postponement, until the aqueous humour should have been again regenerated. It is possible, however, by carefully manœuvering the point of the instrument, gently depressing and raising it at the same time that we force it slightly forward, to avoid the iris, and accomplish the operation. The greatest difficulty will be experienced in attempting to pass it over the inner ciliary edge of this membrane. Where the iris falls before the edge of the knife, it should be reinstated by pressing gently with the finger upon the cornea. In many cases, it is necessary to keep up this pressure until the section of the cornea be completed: and this may be done without any risk at all of injuring the iris *.

In very irritable and timid patients, it not unfrequently happens, that when we have already made the punctuation of the cornea, by a sudden and convulsive motion of the eye inwards, it flies entirely off from the point of the knife. We are then to take a new instrument, search for the old orifice, and complete the section. Or the eye may recede so far into the inner canthus, as to conceal completely the part of the cornea at which the knife is to be brought out. This accident may be prevented, in a great measure, by adopting Mr. Ware's method of steadying the eye by slight pressure with the finger.

Should a prolapsus of the iris occur after the operation, the surgeon may readily reduce it by closing the eye-lid, rubbing gently but rapidly over the cornea with the thumb, and then suddenly opening the eye, so as to admit a moderate degree of light. This will cause the iris at once to contract. This accident is most liable to occur where the surgeon has been compelled to make use of the curette for the extraction of fragments

---

* The action of the finger upon the cornea, in causing the iris to recede from the edge of the knife, seems more a mechanical than organic effect, as it takes place equally in the dead body.

of the lens. It may happen also from a protrusion of the vitreous humour. Here no attempt should be made to bring back the parts into their natural position; the eye is to be left to itself, and the wound in general heals very kindly, leaving only a slight malformation of the pupil, which does not, however, in the least interfere with the patient's vision *.

Where the capsule is found opake after removing the lens, we should always endeavour to extract it with a small pair of forceps.

It may happen that a slight obscurity of the capsule is overlooked by the surgeon, previous to his operation. This is more liable to occur in the cataracta scabrosa, particularly if the lens be very white. Barth makes mention of this cir-

---

* Professor Beer has found, by the result of certain experiments made upon the vitreous humour, that in no case, where it escaped, was it ever regenerated, but that its place was always supplied by an increased secretion of the aqueous humour. If one fourth part of this substance only is destroyed, and the eye remains in other respects uninjured. the sight, he says, is not in the least degree impaired; but with the loss of one third, the vision is very sensibly affected.

Richter remarks, in his Surgical Observations, that if only a small portion of the vitreous humour flows out of the eye after the operation for cataract, the patient always sees better; and this observation is sanctioned by the very extensive experience of Beer. He asks the question, how far it might prove beneficial to let out a little of this humour after extraction; and if the quantity could be duly regulated, no doubt could remain of the propriety of the practice. It is always to be apprehended, that by the convulsive action of the muscles, so apt to take place after extraction, more might be forced out than is absolutely safe.

cumstance, but supposed the capsule would so contract itself behind the iris, as to leave a sufficiently large and transparent pupil. This contraction of the capsule, however, is never to be depended upon; and it is always the safest practice to remove it. The slightest inflammation which may ensue from the operation, will unite the capsule with the uvea, and thus cause an opacity scarcely capable of removal by any subsequent efforts *.

A second and more ancient mode of operation, is that of *Couching*, or *Depression of the lens.* Celsus is said to have already practised this method, and until the beginning of the last century none other was attempted. About this time, we have seen that the French surgeons suggested and ventured upon opening the cornea for the extraction of the lens, and this continued the favourite practice of most surgeons, both in England and on the Continent, until the writings of Pott, Hey, Scarpa, and others, brought the operation into disrepute, by the very decided preference they gave to the older, and the numerous objections they advanced against the new method.

The needles which are most commonly employed in this operation, are those of Saunders and Schmidt, (delineated in figures fifth and sixth.) The spear-pointed needle of Professor Beer, (figure 7.) claims, perhaps, the preference over either.

---

* Dr. Lobstein Loebel, a Dutch oculist, has recommended and practised the extraction of the lens through the sclerotica. His mode of operating is described in the 37th volume of the *London Medical and Physical Journal*, which contains also some remarks on the operation by Dr. Chapman.

In performing this operation, surgeons have, in general, stuck *ad libitum* through the sclerotica, and it is for this reason that the practice is so often attended with the most unhappy consequences. It is of the greatest importance, therefore, that the operator understand the precise point at which he is to introduce his needle, and the parts and structures he should carefully avoid. The chief of these are the long ciliary nerve and artery, the ciliary processes, and retina; if one or other of these is injured, the result is the most serious, and the intention of the operator may be completely frustrated. The patient, even before the needle has entirely penetrated the eye, often cries aloud from the horrible pain excited, and there can be no doubt in this case, that one of the large ciliary nerves is divided. This may indeed occur to the most expert operator, where the nerves do not follow their natural course, but such instances are comparatively rare, and we may most commonly account for this accident, from the very faulty manner in which the instrument has been made to pierce the sclerotica. As these nerves run in bands along this tunic, and the external most generally shape their course directly in the equator of the eye, we should direct the needle somewhat below this. In this manner, we likewise avoid the great ciliary artery, which accompanies the nerve. These nerves and arteries anastomosing again before the ciliary band, which stretches to the distance of a line all round the cornea, they are inevitably injured too, if the needle be brought to enter any where within this space. The processus ciliares may be wounded also, and the consequence is, a sudden and profuse hæmorrhagy in the posterior chamber, which completely obscures the field of the intended operation. By making the puncture about a line and a half from the cornea, and a little distance below the horizontal diameter of the eye, we incur no danger of wounding either of these bodies, and at the same time avoid injuring the retina.

The German oculists distinguish two modes of couching. *Depression*, or the depressing of the lens immediately downwards and behind the iris; and *Reclination*, where this body is not only pushed downward, but backward and outward into the vitreous humour. The first and second stages of the operation are the same in both.

The patient being arranged in the manner recommended when speaking of extraction, the operation is performed in the following manner. The surgeon, taking the needle in his hand as he would a writing pen, with its convex side forward (if a curved one be used,) or the flat side parallel to the iris, if the spear-pointed be employed, thrusts it boldly through the sclerotic coat, at the distance of about one line and a half from the margin of the cornea, and a little below the transverse diameter of the eye. The instrument should be directed neither parallel nor perpendicular to the iris, but in an oblique manner, as if we intended to pierce the centre of the eye. Having traversed the sclerotic and choroid coats, the handle of the needle should be depressed towards the temple, and its point carried steadily forward through the posterior chamber without injuring the lens, until it has reached the nasal margin of the iris. If the intention of the surgeon be now to *depress* the cataract, he carries the needle to the summit of the lens, and turning the instrument a little around upon its axis, so that the flat surface, which before was applied to the front of the cataract, be now placed upon the superior edge, presses it obliquely downwards and outwards, so as to conceal it beneath the pupil. When this is done, he raises the needle gently, in order to discover whether the cataract continue in its situation; and then withdraws it in the same direction in which it was introduced *.

If, on the other hand, the surgeon wishes to *recline* the cataract, he rests the flat edge of the needle on its anterior surface, and raising the handle diagonally forwards, pushes the opake lens into the bottom of the vitreous humour, between the inferior and external straight muscles. In this position, what was before the front surface of the cataract, will become the upper one; the back surface, the lower one; its upper edge will be turned backwards, its lower edge forwards.

---

* Professor Langenbeck, one of the most distinguished surgeons of the present time, practises the depression of the cataract *per corneam;* in this way, however, the iris is very liable to be injured by the neck of the instrument, and the lens is seldom or never perfectly depressed.

Great care is necessary not to push the lens too far back into the vitreous humour. This is a very common fault with young operators. The lens in this case resting upon the retina, amaurosis is often the consequence, and the patient, who before the operation could find his own way, or distinguish larger objects by twilight, is now completely blind.

Richter seems to have been well acquainted with this circumstance, and advises that the cataract be made to assume its former position, by the patient's jumping from a stool or other height, or by shaking his head violently[1].

Various circumstances may occur to modify, in some degree, the operation now described. A great advantage, and one much insisted upon by the advocates for couching, is, that the capsule is removed together with the lens, from the axis of vision; and the most frequent cause of secondary cataract in this manner prevented. It may happen, however, that the lens alone is displaced, and the capsule remains in *situ*. Unless the latter partake of the opacity, the circumstance is not discoverable until some days or weeks after the operation, when a secondary membranous cataract forms in the eye; and it is only in those cases, where the capsule is opake at the time of the operation, that the surgeon is enabled to discover the accident. To render the operation, therefore, complete, he should, before withdrawing his needle, divide the capsule as freely as possible, and remove it entirely from the pupil.

---

[1] "I should have no hesitation," says Mr. Guthrie, (p. 231) "in an extreme case, of introducing a needle, for the purpose of raising the lens, considering any evil more bearable than loss of sight, when accompanied by extreme pain; and that relief ought to be sought at any risk." The safety of the eye may also depend on a similar attempt to relieve pressure against the iris. EDITOR.

It sometimes happens that the cataract rises again as soon as the needle is withdrawn, which accident is most commonly owing to some adhesion existing between the posterior capsule and hyaloid membrane. In order to complete the operation in this case, it will be necessary for the surgeon to separate this adhesion, by making several perpendicular movements with the cutting edges of his needle on the posterior side of the lens, when he may attempt the reclination again. This rising of the cataract may proceed likewise from the operator's running the point of his needle into the substance of the lens. When this occurs, the surgeon must either withdraw the instrument far enough without the eye to perform the operation anew, or endeavour, by rotating the needle a few times upon its axis, to disengage the point, leaving the cataract depressed[1].

If the cataract be of a fluid or milky nature, the capsule will most likely yield with the first attempt to recline the lens, and a quantity of whitish fluid will be seen to issue from behind the pupil, diffusing itself throughout the whole of the anterior chamber, so as completely to obscure the iris. No danger need be apprehended from such an occurrence, as this matter is quickly again absorbed; the surgeon, however, in order to guard against the danger of secondary cataract, should divide as freely as possible the anterior capsule, upon which, indeed, the success of the operation entirely depends.

When, instead of the fluid cataract, the surgeon meets with one of a softish or pulpy consistence, all attempts to depress or recline it will prove fruitless. It will be sufficient, under these circumstances, to depress the more solid nucleus, or larger fragments only, whilst the softer parts are freely divided and brought into the anterior chamber for absorption.

---

[1] On the rising of the lens, Mr. Guthrie also observes, that "when a general pressure is applied by any motion of the eye-ball, the lens, although heavier and firmer than the vitreous humour generally, will naturally take that direction (because it cannot yield equally to the force applied), in which the resistance is least." See Lectures, p. 382. EDITOR.

The dressings and treatment after reclination or depression do not differ from the plan recommended when speaking of extraction. Should a thrombus arise under the conjunctiva, where it has been pierced with the needle, it is most commonly dissipated without the interference of art. The vomiting which usually occurs from a wound of the ciliary nerves is, in general, very easily controlled by the exhibition of opiate or antispasmodic remedies[1].

A third mode of operating for cataract is, *the breaking up of the substance of the lens, and bringing it into the anterior chamber for absorption.* The term *Keratonyxis* is commonly applied by the Continental writers to this operation; it is better known in England and in this country, under the title of Saunders' operation. Without meaning, however, in the least to detract from the merits of this gentleman, we cannot but question his claims to the discovery, as the operation had been described and practised long before his time. We have only to refer to the works of Messrs. Pott*

* "In order to render the fact still more clear, I have, sometimes, when I have found the cataract to be of the mixed kind, not attempted depression, but have contented myself with a free laceration

---

[1] Scarpa says it frequently happens that, in hysterical subjects, a violent spasmodic affection of the head succeeds the operation, which is speedily relieved by an enema of two grains of opium in camomile tea. I cite this, with a view of recommending such injections (where there is great nervous disturbance,) in preference to administration by the stomach. EDITOR.

and Hey, and we shall find a full and accurate detail of almost every thing that is known on the subject at the present day. To Mr. Saunders is justly due, however, the merit of having called the attention of surgeons to an operation, which otherwise might have been passed over with indifference or total neglect.

There are not wanting others who have laid claim to the discovery; and it is no very easy matter to decide to whom we can justly assign the priority. Thus, *Gleize* *, in attempting to extract a cataract, was prevented by the convulsive motions of the eye from completing his first incision through the cornea, and withdrawing his knife, he introduced a needle through the wound, and punctured the capsule. The lens was absorbed, and the pupil again became perfectly clear. He practised this mode often afterwards, and found, that in from two to six weeks the fluid cataract was constantly absorbed. *Conradi* † adopted

---

of the capsule; and having turned the needle round and round between my finger and thumb, within the body of the crystalline, have left all the parts in their natural situation; in which cases I have hardly ever known them fail of dissolving so entirely as not to leave the smallest vestige of a cataract. In a few instances I have pushed the firm part through the pupil into the anterior chamber, where it has always gradually and perfectly dissolved, and disappeared, not producing pain or trouble while such dissolution was accomplishing." *Chirurgical Works*, vol. iii. p. 156.

* *Nouvelles Observations pratiques sur les Maladies de l'oeil et leur Traitement.* Paris, 1786.

† From the well known fact of the crystalline being gradually absorbed, whether it be of a hard or soft consistence, if the capsule

the practice of Gleize, but used, instead of the needle, the cataract knife to puncture the capsule. Professor Beer attempted the operation about the same time with the latter, and his experiments are detailed in the same work. The result of these, however, was most unfavourable; as, in twenty-nine instances, one only perfectly succeeded. This he now very justly attributes to the improper choice of the cases upon which he operated. Buchhorn [*], of Magdeburg, afterwards published

---

is opened, and the humour allowed to come into free contact with it, Conradi was led to propose the following very simple operation: "A small lancet-shaped cataract needle is introduced through the cornea, exactly as the knife in extraction, only a little further distant from the iris. The point is passed through the pupil, and when the capsule is sufficiently opened, the needle is withdrawn from the eye, which is bound loosely for two or three days, as, in general, so slight a wound of the cornea is quite imperceptible, and then we wait for the absorption of the cataract. Conradi adds, it is unnecessary to dwell upon the advantages of this operation; it is much more easily peeformed than any other. From this very trifling wound of the insensible cornea, none of the bad symptoms are to be dreaded, which may occur during extraction and depression, or which sometimes follow these operations. If, after eight or twelve weeks, the cataract is not absorbed, any other operation may be performed as easily as if this puncture had not been made. The patients have lost nothing but the time; and as they have, in general, been many years blind, it is not of much consequence, a few weeks more or less, in order to make the trial of freeing them from their disease by a safe and easy method." *Arnemann's Magazin für die Wundarzneykunst.* 1 Band. p. 59; or the *London Medical and Physical Journal*, vol. xxx. p. 71.

[*] *De Keratonyxide disser. inaugur.* Halae, 1896. *Eine neue gefahrlosere Methode den grauen Staar zu operiren.* Von W. H. J. Buchhorn. Magdeburg, 1811.

Buchhorn was the first to give the name of Keratonyxis to the operation.

a dissertation on this subject, in which he recommends the laying aside of the knife, and operating entirely with the needle. He gives the preference to the method of Conradi, as the lens is more liable to be absorbed when the capsule is freely lacerated with a needle, than where it is simply divided with a knife. To prevent the escape of the aqueous humour, Buchhorn made use of a round needle, slightly curved at its point after the manner of Scarpa, which became gradually thicker towards the handle, so as to fill up completely the puncture of the cornea. It is evident that this form of instrument must penetrate with great difficulty the cornea. Professor Langenbeck *, of Gœttingen, to do away this objection, adopted the usual couching needle of Scarpa, and operated, as he says, very successfully upon both hard and soft cataracts. He experienced not the least inconvenience from the escape of the aqueous humour, and the consequent collapse of the iris, two circumstances so much dreaded by Buchhorn. Many oculists, and Beer among the number, give the preference to a straight needle, with a spear-shaped point; and this has certainly the advantage of penetrating much more easily the cornea, than an instrument with a curved point. The surgeon can likewise direct its motions with much greater precision.

A few hours previous to the operation, it is

---

* *Prüfung der Keratonyxis*, p. 31. Gœttingen, 1811.

customary to drop into the eye a small quantity of the infusion of belladonna, (one scruple of the extract to an ounce of distilled water,) for the purpose of dilating the pupil. This may be repeated again a very short time before the operation[1]. If there is no adhesion between the capsule and iris, the latter will be scarcely perceptible, or is seen to form a narrow ring only within the circumference of the cornea. The whole of the anterior surface of the cataract is in this manner exposed to view. The puncture[2] may be made upon the external or lower side of the cornea*. Langenbeck prefers the latter mode, as in this manner he is enabled to operate with the right hand on either eye. Having penetrated the cornea, the needle is to be carried forward parallel to the plane of the iris, until it reaches the centre of the pupil, when its point is to be dipped inwards towards the lens. By a gentle motion of

* Where children are operated upon, it will be necessary to fix the eye with Pellier's speculum.

---

[1] Mr. Travers, after shewing the serious consequences of pressure on the iris, says, "under the influence of belladonna, I repeatedly observed that the unsupported lens came forward, and symptoms of pressure commenced. By omission of belladonna, till the aqueous humour was renewed, this accident was effectually prevented." Med. Chirur. Trans. 4. 293. We should avoid too great dilatation of pupil, or too extensive laceration of capsule, should the lens prove firm and our object be its solution in situ. Editor.

[2] If the puncture be too near the circumference of the cornea, a greater risk of subsequently pressing the iris with the needle will be incurred; if too near the axis of vision, the sight is more endangered by opacity. Ed.

the instrument from side to side, the surgeon endeavours to destroy as much of the anterior capsule as fills up the natural pupil; and having accomplished this, he proceeds to break up the texture of the lens itself. Great care should be taken that no filaments of the capsule remain to intersect the pupil, as they become so elastic as to resist every effort afterwards made to depress or break them; and so long as they preserve their connexion with the sound parts, they can never be absorbed. It is not sufficient either for the destruction or absorption of the lens, that its texture alone be broken, but as many of the fragments as possible should be brought into the anterior chamber.

The time occupied by the absorbents in taking up these fragments, varies according to the consistency of the cataract, and the age and constitution of the patient. If he be old or decrepit, the operation will be most liable to fail, as the power of absorption is, in such cases, but very feeble. It often happens that the absorption, though it continue very rapidly for a time, is suddenly arrested. The dropping into the eye a little of an infusion of the hyosciamus, or pencilling it with Mr. Ware's solution of opium, where no inflammation is present, will be found to answer a very good purpose*.

---

* Not only the lens, but also foreign bodies when lodged in the anterior chamber, undergo this process of absorption. Thus Mr.

This mode of operating, it is evident, will apply, in the adult, to the fluid or soft cataract only. Mr. Saunders was the first to point out the propriety and safety of this operation likewise upon infants and children; and when we consider the advantages gained by restoring vision at so early a period, the value and importance of the practice cannot be estimated too highly. Mr. Saunders was accustomed to operate at any time between the ages of eighteen months and four years; his friend and successor, Dr. Farre, is inclined to prefer the operation at the age of two years. The parts at this time, he remarks, have attained a degree of resistance, which enables the surgeon to operate with greater precision than at an earlier period; yet the capsule has not become so tough and flexible as it does at a later period, after the lens has become more completely absorbed*.

This, however, is not the only advantage of operating thus early. It is well known that persons born blind, or who have remained in this state for any considerable, time acquire such an inveterate habit of rolling the eye, that it is im-

---

Cline, in operating for cataract, accidentally broke the point of his knife, which was deposited in the eye. It could be distinctly seen afterwards, glistening through the cornea. It became rapidly oxidated, and the whole chamber was rendered turbid. In a few days it was completely absorbed, and the eye resumed its natural appearance.

* Vide *A Treatise on some Practical Points relating to Diseases of the Eye*, by John C. Saunders, with additions by J. R. Farre. Philadelphia, 1821.

possible for them, even after the vision is again restored, to control it. The parallel or associated motion of the two eyes is completely lost, and the patient cannot fix them steadily upon any object for a single moment. From this unsteadiness, his sight is rendered confused and indistinct, and he is entirely deprived of all useful vision.

As an additional motive for operating early, it should be remembered that the retina, like all other structures of the body, from want of proper exercise, loses much of the power it originally possessed, or is rendered completely amaurotic [*]. Mr. Saunders remarks, "its sensibility, in many of the cases cured at the ages of four years and under, could not be surpassed in children who had enjoyed vision from their birth; but at eight years, or even earlier, the sense was evidently less active; at twelve, it was still more dull; and from the age of fifteen and upwards, it was generally very imperfect, and sometimes the mere perception of light remained." The sooner, therefore, any operation is attempted, the greater prospect is there of success.

A single operation sometimes suffices, and the cure is accomplished in a few weeks: more commonly some part of the lens or capsule remains behind in the pupil, and it is necessary to repeat the operation once or oftener. The surgeon should be careful, however, never to undertake a second operation, until the pain and inflammation of the first have completely subsided.

---

[*] I have known, in one instance, its sensibility entirely destroyed by the long existence of a cataract. The patient was a peasant, about forty years of age, who had been afflicted with cataract in both eyes from his fourteenth year. As he was still enabled to distinguish the various gradations of light, extraction was undertaken, and the cataracts successfully removed. Very little inflammation ensued upon the operation; the pupil remained perfectly black and circular; yet the vision was not in the least degree improved.

Another mode of performing keratonyxis, is by passing the needle through the sclerotica *behind* the iris, hence, this has been called the *posterior operation*[1]. "Few cases of lenticular cataract occur to which this is appropriate. There is more pain, more inflammation, more danger of displacing the lens, than in the operation through the cornea. But when the capsule is opake, and the lens diminished in bulk, either spontaneously, or in consequence of former operations, so as to have receded from the pupil, the posterior operation is more eligible, as the operator readily ascertains the effect of the needle upon the capsule, and directs its movements to the best advantage, while the inflammation is always moderate in proportion as the lens is small. Indeed, in the purely capsular cataract of the adult, and the half absorbed cataract of children, it is so slight as scarcely to confine the patient. When a cataract of firm consistency has undergone a partial absorption from one or more operations with the needle, and still does not readily separate into fragments, the introduction of the needle, posterior to the iris, gives the surgeon the advantage of couching it. This I have often done to the great satisfaction of the patient, who escapes, owing to the diminished bulk of the lens, the inflammation which occasionally follows the primary operation for couching[*]."

---

[1] Keratonyxis, implying puncture of cornea, is here a contradiction in terms, unless we adopt the old denomination of cornea opaca for sclerotica. EDITOR.

The operation of keratonyxis has several advantages over those of extraction and couching.

1. A single coat of the eye only is injured: and as this contains neither large nerves nor blood-vessels, there is no danger of hæmorrhagy, and the pain occasioned is so slight, that the patient is easily reconciled to undergo this operation, when he will refuse to submit to any other. It is on this account that we would especially recommend the operation in children, where the pain from piercing the sclerotica is often so violent as to cause convulsions.

2. We may better control the motions of the eye, particularly if the needle be introduced from below; as the eye-ball is much more apt to recede towards the root of the nose, than the orbitary ridge, when threatened by the needle.

3. From the transparency of the cornea, we are enabled to observe every motion of the instrument,

---

[*] Vide Travers on Cataract, in the *Medico Chirurgical Transactions*, vol. iv. p. 292.

and to direct the operation with the more precision. The operator's attention, besides, is confined to the manipulations of a single instrument, and not divided, as in extracting and couching, among a variety of difficulties.

4. The surgeon is enabled to operate with the right hand on either eye; and this is no small advantage to the young and inexperienced operator.

5. The cornea having no connexion with the iris, wounds of the former never affect the latter. Hence iritis is seldom a sequela of the operation, unless the iris have suffered from the awkward manner of using the needle, or from adhesion between this membrane and the capsule of the lens. Professor Langenbeck performed the operation twenty-eight times, and in one instance only was it followed by inflammation of the iris. The inflammation in general is confined to the conjunctiva, and yields very readily to low diet, fomentations of tepid water, and purgatives.

6. If the operation be properly performed, the anterior capsule is always destroyed, and one of the most frequent causes of secondary cataract thus avoided.

7. The operation may be performed on young children and infants as readily as upon the adult, as from the dilated pupil, there is little danger of wounding an important part of the eye.

8. The operation may be repeated any number of times without injury. It is on this account,

that the surgeon should avoid the too free use of the needle in his first operation. He is the more apt to commit this error, from a fear that the patient's fortitude will not hold out to have a second performed.

9. The posterior capsule, the central artery of the retina and vitreous humour, are not in the slightest degree injured by this operation, and hence amaurosis and a total wasting of the eye, which are so often the consequence of division through the sclerotica, are seldom or never found to follow division through the cornea * [1].

The operation[2] has of late got into much disrepute, owing merely to the indiscriminate manner in which it has been adopted in all cases of cataract. M. Demours, in his very splendid work, has devoted scarcely half a page to the subject, and condemns the operation in toto; and from the attempts lately made by M. Roux, of Paris, to revive the operation of extraction, we dare hardly hope to see its claims again brought forward. It is due to Mr. Saunders to state, that its

* Vide Langenbeck's *Prüfung der Keratonyxis*, &c.

---

[1] That partiality has here magnified the advantages of puncturing the cornea, and the evils of the posterior operation must be manifest on the slightest examination. Inquiries have led me to believe that keratonyxis is not so favourably reported by the experience of English surgeons; and that the posterior operation is more commonly adopted. The positions in favour of keratonyxis, by Professor Langenbeck, seem for the most part but little valid. Ed.

[2] That is, of exposing the lens to the action of the aqueous humour, by anterior or posterior use of needle. Ed.

superiority was distinctly asserted by him in cases of soft and capsular cataract only. He intended ascertaining the results in the other varieties, but was prevented by an untimely death.—Mr. Travers, his pupil and successor, followed up his intentions, but his success was little satisfactory. He says "With every precaution, the operation with the needle upon the full and firm cataract, is either distressingly tedious, or, what is more to be objected to, destructive to the organ, and very trying to the health and spirits of the patient. In such cases, I have therefore relinquished the operation, which was very ingeniously contrived, and, for its simplicity, appeared to me to deserve a full and fair trial of its merits*."

From the various and complicated nature of cataract, it is difficult to lay down any precise or established rules, with regard to the particular mode of operating in each case, and much must be left to the judgment, discrimination, and experience of the surgeon, in determining the choice of his operation. It is in vain that certain writers would attempt to argue, that either mode can be adopted indiscriminately in all cases, or that by any newly invented or improved method, any single operation may be rendered applicable to all the varieties of cataract. The merest tyro in the profession must at once perceive, that it were absurd to talk of extracting a soft cataract, dividing a hard, or depressing a large one; yet the most skilful and able surgeon will often feel himself at a loss, even where the diagnosis is sufficiently made out, in selecting between the one or the other of these methods.

---

* Travers, Op. Citat. p. 291.

We may lay it down as a general rule to *extract* in all cases, where such cataract occurs in a healthy subject, without any complication of other disease, and is of the species denominated dura, where the eye remains firm and quiet under the knife, where the pupil is large and dilated, and where the anterior chamber is large and full. These are, upon the whole, the most favourable cases for any operation.

The extraction of the lens, on the contrary, should never be resorted to in those cases, where the lens adheres in some part of its surface to the iris; where the cornea is very flat, and the anterior chamber of the eye, of course, so much diminished, that the section of the cornea cannot be made sufficiently large to admit of the passage of the lens; where this tunic presents the appearance denominated arcus senilis, as the wound made under these circumstances never heals; where there is present an habitual contraction of the pupil (myosis,); where the eyes are seated deep within their sockets, and the eye-lids cannot be opened to a sufficient distance; where adhesion has formed between the iris and cornea; where the cornea is affected by maculæ or other diseases; where the patient is very timid and irritable, or old and cachectic; and where any particular predisposition prevails to inflammation of the eye, chronic ophthalmia of the lids, &c[1]. In all such instances, *Couching*, or the *Division of the lens*, are to be preferred; and wherever the cataract is sufficiently soft to admit of absorption, the division is always the most advisable and safe of the two operations.

---

[1] It is desirable to examine the state of the conjunctiva (especially if there be external puffiness) previously to operation. In one instance I was compelled to withdraw the needle, the eye becoming completely covered with fungous conjunctiva, on sudden spasm of the orbicularis; this diseased state of membrane was unknown to me previously. In two minutes I was able to resume the operation with the precaution of preventing eversion of the lid. EDITOR.

CHAPTER VI.

OF THE DISEASES OF THE VITREOUS AND AQUEOUS HUMOUR.

Glaucoma.—Cataracta viridis sive Glaucomatosa.

THIS disease receives its name from the peculiar sea-green colour which the vitreous humour assumes, from the very commencement of the complaint. The first indication we have of its formation, is a slight obscurity or opacity, perceptible deep within the eye. This opacity increases with the progress of the affection, advancing nearer and nearer towards the pupil. The latter loses by degrees its shining black appearance, and assumes a dark, or rather a sea-green colour. It is no longer circular, as in its natural state, but is lengthened in its horizontal diameter, or assumes an oval shape, not unlike that of graminivorous animals[1]. The vision from the commencement of the attack, is more or less impaired, and finally completely destroyed.

---

[1] This circumstance is not constant; a caseunder the care of Mr. Lawrence, at the Ophthalmic Infirmary, will be found recorded by Mr. Cooper, (Surg. Dict. ed. 5. p. 537.) in which the diameter of the pupil was not greatest in the transverse direction. It is further stated, that as the iris shrinks towards the margin of the cornea, its pupillary edge is inverted towards the lens, so that its smaller circle completely disappears. EDITOR.

These appearances are always accompanied with a greater or less degree of pain in the eye or neighbouring parts. It is more particularly felt about the cheek or side of the face, darting thence into the orbit and brain. At one time the pain is very violent, then again abates or ceases entirely; it is always increased by the warmth of a bed, and relieved when the patient rises and breathes the moderate temperature of his chamber. These paroxysms of pain gradually cease as the glaucoma is more developed.

The disease is at length propagated to the lens, and this is observed to take on the same sea-green colour as the vitreous humour. The crystalline in this state enlarges, so that the anterior chamber is almost destroyed. The iris, in consequence, is either projected forward in contact with the cornea, or is seen to form a very narrow ring encircling its circumference. From the peculiar colour of the lens, this opacity was known by the older writers under the name of *Cataracta Viridis.* It is more appropriately termed by Professor Beer, *Cataracta Glaucomatosa,* and from the symptoms already enumerated, is easily distinguished from every other variety of cataract.

Glaucoma is generally the sequela of gouty ophthalmia, or it may arise spontaneously, and without much previous inflammation. It is always connected, however, with morbid changes in other parts of the body, which may be traced to the same arthritic diathesis[1]. Thus it is often found associated with a disturbed state of the liver, or some other of the abdominal viscera, sometimes with diseases of the skin, and now and then with a genuine paroxysm of gout. I have seen it excited, in one instance, by the sudden healing of an old ulcer upon the leg.

In persons very advanced in age, the lens is liable to change its colour, and take on the appearance of glaucoma; but in these cases, the sight of the patient is not in the least impaired, whereas the glaucoma is accompanied with a complete state of blindness. Certain changes in the choroidea, as a diminished secretion of its black pigment, may give rise to the same coloured pupil, but here too the vision is very slightly, or scarcely at all, affected.

It is not as yet decided among pathologists, whether the opacity in this disease be seated in the delicate membranous septa of the hyaloidea, or in the fluid contained within their cells; or whether both are similarly affected. Professor Beer, in making a section of a glaucomatose eye, supposed he saw that part of the vitreous humour, immediately surrounding the foramen of Sœmmering, much deeper coloured than the remaining portion; and were this fact corroborated by further observations, we might, perhaps, be led to the conclusion, that this was the original seat of the affection; and that the disease was propagated from this part to the rest of the humour.

---

[1] Mr. Guthrie justly questions this constant connexion with gout. Lectures, p. 216. EDITOR.

Glaucoma, when fully developed, is incurable. Those remedies upon which most reliance is placed for arresting or controlling the disease are, local and general blood-letting, purgatives, blisters to the temples, or behind the ears, warm aromatic applications to the eyes, &c.

Solution of the Vitreous Humour.—Synchysis.

By the term Synchysis, is understood, an absorption, or diminished bulk of the vitreous humour. The disease may arise with or without previous inflammation. Professor Beer is of opinion, that it is frequently the sequela of the excessive or improper employment of mercury, in persons who have long suffered from syphilis, or in those of a weak and cachectic habit. In either case, the vitreous humour will be found to have lost its albuminous or firm consistence; and to partake more of the fluidity of the aqueous humour. Where the synchysis has been preceded by inflammation, the vitreous humour loses also its transparency, changing to a straw or yellow colour, or even to a brownish tint. In some cases, the septa of the hyaloid membrane are entirely destroyed or absorbed, and the vitreous humour is contained in the general coats of the eye, in the same manner as a fluid is contained within a sac; in others, they are only rendered more delicate and crisp, so as readily to suffer rupture. The vision is much impaired, or entirely destroyed. Where the patient retains any sight, he is always more or less presbyopic. The pupil is much contracted and irregular; the iris loses its irritability; very often it is found tremulous, or seen to vacillate backwards and forwards, on any motion of the eye-ball. The crystalline now becomes opake, but never swells out, or assumes the sea-green appearance of glaucoma; it is rendered softer in its texture, and the cataract is generally of that kind denominated *caseosu.* That part of the sclerotica immediately encircling the cornea, assumes a bluish or leaden colour, very much resembling the tint observed in the same coat of young children. The globe of the eye itself is soft and flaccid; the disease soon terminates in complete atrophy of the organ.

This affection, like glaucoma, is to be ranked among the incurable diseases. It is sometimes arrested in its incipient stage by free exercise, an invigorating diet, and the administration of tonics. The bowels at the same time should be kept slightly open, and the patient should avoid as much as possible using the affected eye*.

Dropsy of the Eye.—Hydrophthalmia. Buphthalmos.

Dropsy arises in the eye precisely as in the other cavities of the body, and depends upon some inequality in the condition of the secerning and absorbent vessels. It seldom occurs as a local or independent disease; more commonly it is the effect of a certain weak or cachectic state of the whole system, or it is symptomatic of some other dropsical affection.

The disease may arise from an increased accumulation of either the aqueous or vitreous humours, or both. The first of these, or *Dropsy of the Aqueous humour*, is characterized by the following appearances. The cornea increases in size and circumference to three or four times its former bulk, without bursting or losing its transparency. The anterior chamber, in consequence, is much enlarged. The iris is sluggish, and becomes of a darker colour; the patient complains not so much of any particular pain in the eye, as of a sensation of pressure or constriction of the globe; he is long-sighted at first, but by degrees loses more or less his power of vision. The eye-ball is hard to the feel, and more confined in its motions, in proportion to its gradual enlargement.

---

* The loss of the vitreous humour, which is often consequent upon wounds or operations of the eye, can hardly fall under the denomination of synchysis, as this is quite accidental, and unconnected with any morbid change in the humour itself.

When the disease advances to such a state that the eye-ball is considerably protruded beyond the orbit, and can no longer be covered by the lids, there is superadded to the symptoms already described, all those enumerated under the head of total staphyloma, viz. dryness of the eye, a constant discharge of the tears and matter over the lids and cheek, friction from the cilia, and a low chronic ophthalmia, produced by the continual exposure of the organ to the air, and the extraneous matter floating in it.

Knowing so little of the true causes of hydrophthalmia, it is difficult to prescribe any systematic course of treatment, or to expect much benefit from any particular mode of cure. Nothing, indeed, can be done to prevent the blindness which inevitably follows the more advanced stage of the disease, or to alleviate it when it has actually taken place; and the utmost the surgeon can effect, is to quiet the uneasy sense of distention or constriction, which the patient feels throughout the orbit, or to arrest the further growth and protrusion of the tumour.

Where the disease is symptomatic only of a general hydropic state, our remedies should be adapted more to the general than to the local affection. Of these, perhaps, the most efficacious are, calomel, cicuta, or the pulsatilla nigricans. Professor Beer prefers a combination of calomel with digitalis. In addition to these, we may resort to blisters, issues, stimulating and mercurial frictions to the eye-brow, &c. Instead of the astringent or stimulant collyria, so much employed, nothing more should be advised than the covering the eye with a fold or two of dry warm linen, rubbed over with a little camphor, or some other aromatic substance.

If, however, the disease be far advanced, or produces an unpleasant sense of tension in the eye, it will be necessary to draw off the superabundant fluid by the *paracentesis.* The best instrument for performing this operation is a common lancet, which should be thrust into the cornea a line from its margin, evacuating the aqueous humour afterwards by slight pressure upon the eye-ball. The eye should be kept in this state of collapse for days, or even weeks, by lifting the flap daily, and permitting the fluid to escape. The surgeon must be careful never to practise this operation in a varicose state of the organ, as it infallibly leads to inflammation, suppuration, or even gangrene of the eye-ball, and may endanger the life of the patient.

In the second species, or in the *Dropsy of the Vitreous humour*, the enlargement of the eye takes place chiefly from behind, or in the posterior part of the ball. The iris is arched forward, and brought almost into direct contact with the cornea; so that the anterior chamber is nearly or completely obliterated. Its colour remains unchanged, but the pupil is rather more contracted than in its ordinary state. The sclerotica surrounding the cornea distends, and is of a dirty bluish colour. The patient, at the commencement of the disease, becomes myopic, and gradually loses his vision entirely. He complains of great pain in the eye, which increases daily with the progress of the complaint, and extends eventually through the head, cheeks, jaws, and even down the neck.

A slight grade of this disease frequently attacks persons very advanced in age, but remains stationary throughout the rest of their lives. The ball of the eye protrudes beyond its socket, from an increased quantity of vitreous humour contained within it; but there is no other diseased appearance manifest about the organ [*].

The *Prognosis* in this variety, as in the former, is generally unfavourable, and the same treatment is applicable to both.

Professor Jacobson, of Copenhagen, has described another species of hydrophthalmia, which he attributes to an increased secretion of a fluid between the choroid coat and retina. It is the same disease which Scarpa has noticed under the head of staphyloma of the sclerotic coat.

---

[*] Vide Benedict, *Disquisitio de morbis humoris vitrei, in oculo humano*, p. 27.

PART III.

OF THE DISEASES OF THE APPENDAGES.

CHAPTER I.

OF THE DISEASES OF THE EYE-LIDS.

Inflammation of the eye-lids, like inflammation of the eye-ball, has been subdivided by the German pathologists into several varieties, according as the disease is confined to one or other of the tissues, which make up their structure, or is dependent upon general taint of the constitution. I shall notice the most important of these only.

Of Pure Inflammation of the Eye-lids.—Blepharophthalmitis Idiopathica.

This disease most frequently originates in the upper eye-lid, spreading thence to the lower, or extending itself backward upon the conjunctiva. It commences with a red, tense, and painful swelling of the borders, which gradually extends over the whole of the eye-lid, and is attended with great heat and throbbing. The motions of the eye-lid are much impaired, or entirely destroyed. The inflammation spreading to the lachrymal and meibomian glands, their secretions are suspended, the eye-ball in consequence is rendered dry; and every attempt of the patient to move the lid causes excessive pain, or a sensation not unlike that produced by foreign bodies lodged beneath them. The nostril of the affected side, from the same cause, and from the shrivelled state, or entire closure of the lachrymal puncta, being deprived of its natural moisture, obliges the patient to sneeze from the least irritation; and always accompanied with a considerable aggravation of the pain in the swelling, darting backwards into the orbit or head. This stage of the disease is generally attended with some degree of febrile disturbance.

If the inflammation be not soon dispersed, suppuration takes place. The redness now increases, becoming of a dark or purple hue, the swelling is more prominent, or assumes a conical shape, the pain is irregular, and of a burning or pulsatory kind. The tumour at length becomes softer in its centre, and is less sensible to the touch than before. The natural secretions from the lids are again restored, or poured forth more copiously than in health, so that the lids are firmly agglutinated during sleep. An uncommon feeling of cold and heaviness is experienced about the eye;

and a fluctuation is now distinctly perceptible in the swelling, sufficiently characteristic of the presence of matter.

Where the disease occurs in sound constitutions, and is properly treated from the commencement, it may in most instances be resolved. If, on the other hand, the inflammation arises in a weakened constitution, or is injudiciously treated by the surgeon, it rapidly runs into the suppurative stage, or advances to gangrene. The mischief in such cases is not confined to the outer integuments alone, but the mortification may extend to the orbicularis muscle, and, when severe, attack the organ itself.

From the quantity of cellular substance contained in the eye-lids, the abscess which forms after inflammation is, in general, very extensive; hence the unpleasant train of evils which frequently results from suppuration of these parts. Among these may be accounted, 1st. A contraction or complete adhesion of the lachrymal canals, causing a permanent stillicidium. 2d. A prolapsus of the upper eye-lid. 3d. Inversion or eversion of the upper eye-lid and lagophthalmos from loss of substance. 4th. Fistulous sinuses and caries about the bones of the orbit.

The *Cure* of this disease, in its first stage, is easily accomplished by the use of cold and astringent lotions, together with leeches. The latter should never be applied directly to the eye-lid, as they are apt to increase the swelling and congestion of the part. Much benefit, however, may be derived from their application behind the ears. Where there is much constitutional disturbance, general bleeding, with purgatives, should be premised, and the strictest antiphlogistic regimen enjoined upon the patient.

As soon as the disease shows any disposition to suppuration, or the swelling assumes the conical form already described, all thoughts of dissipating the tumour should be given up, and the suppuration assisted by mild emollient cataplasms. If the abscess be seated in the middle of the upper eyelid, ït may, in general, be left to burst spontaneously; if near the canthi, or in the under eye-lid, the matter should be let out with the lancet, as soon as the fluctuation is perceptible, and healed like the common abscess. When fistulous sinuses form about the part, or gangrene ensues, they should be treated by counter-openings, bark, and all such remedies as are usually employed for similar affections in other parts of the integuments.

Erysipelatous Inflammation of the Internal Canthus.—Anchylops Erysipelatosa Idiopathica.

This disease, which is frequently confounded with inflammation of the sac itself, possesses all the characteristic symptoms of erysipelas in other parts of the body. As long as the lachrymal sac continues unaffected, the swelling of the parts is equally diffused, and no particular hardness is discoverable in any portion of the tumour. More commonly, however, the inflammation extends to this organ and its ducts; and a hard, circumscribed and very painful tumour is then distinctly felt just below the tendon of the orbicularis muscle. In some cases it possesses a darker or redder colour than the adjacent parts. The puncta are completely closed, so that there is a constant stillicidium of the tears over the cheeks; the nostril upon the side affected is, in consequence, rendered dry, and uncommonly sensible to the slightest irritations.

These appearances gradually subside, and give place to a new train of symptoms, or to the second stage of the complaint. The papillæ and ducts, if they have not suffered severely in the first stage, again resume their office, and the tears are absorbed and transmitted, as usual, to the sac; the edges of the eye-lids and lachrymal caruncle secrete a tough viscid mucus, so that the lids, during sleep, are firmly agglutinated. The lachrymal sac, if the inflammation has been severe, becomes filled with mucus, which is easily pressed out through the lachrymal ducts and puncta. An abscess now forms beneath the integuments, which opens either externally, or penetrates the fibres of the orbicularis muscle, and the anterior walls of the lachrymal sac. This latter circumstance is easily distinguished, not only by the mucus, which is discharged in these cases with the matter, but from a quantity of tears which issue at the same time, unmixed indeed, with the rest of the contents. It is somewhat more difficult to distinguish the disease, before the abscess has burst, from mucocele, or a collection of mucus within the lachrymal sac; but by a little attention to the history and progress of the symptoms, the diagnosis is easily made out. In the former, or abscess of the cellular substance, the tumour in its commencent is hard and elastic, and the fluctuation only evident at the decline of the disease; in mucocele, on the contrary, the fluctuation, if there be any present, is only perceptible at the commencement, the tumour becoming constantly firmer and more unyielding as the complaint advances.

The *Prognosis* in this disease is generally favourable; more especially when the lachrymal sac continues free from inflammation; and the only ill consequence resulting, is a slight degree of stillicidium lachrymarum, which gradually disappears. The result, however, is less fortunate where the inflammation has attacked and destroyed the anterior walls of the sac, as a very obstinate and long continued blennorrhœa of the sac succeeds.

The *Treatment* in the first stage of this complaint does not differ from that pursued in the erysipelatous inflammation of other parts of the body; and all that is necessary will be to foment the lids occasionally with cold water, to open the bowels by any mild laxative, and to administer afterwards small doses of the tartarized antimony. Unless the inflammation be very severe or extensive, it is seldom necessary to resort to general bleeding. Where suppuration is about to form, the cold applications are to be exchanged for warm poultices of bread and milk, and the abscess, when fully formed, should never be permitted to open spontaneously, lest the sac become involved in the affection; but as soon as the slightest fluctuation is perceptible, we are to proceed to open the sac with the common lancet or bistouri. Should the abscess have burst before the surgeon is called to see the patient, he should avoid the introduction of all probes and syringes into the sac, as is too commonly practised, and content himself with washing out the abscess daily with a little tepid water, thrown in by means of a small syringe. The wound is afterwards to be dressed with a small tent of charpie, moistened with the vinous tincture of opium, care being taken not to push it so deep into the wound as to enter the lachrymal sac.

Psorophthalmia.

This disease generally commences with swelling and redness of the borders of the eye-lids, accompanied with a severe and troublesome itching. Small pustules are observed to form in a short time along their margin, which bursting, discharge an ichorous fluid. The thinner part of this fluid evaporating, small branny crusts are formed, which conceal the ulceration that is extending beneath. Fresh pustules form, and running the same progress with the first, the lids are completely excoriated, and present very much the appearance of the pulp of the fig; hence the disease was known by the older writers, under the name of *Palpebra ficosa.* If the ulceration penetrate deeper, the roots of the cilia are destroyed, and the hairs fall out *(madarosis)*; or the tarsus becomes affected, and entropion is the consequence. During sleep the lids are firmly agglutinated, and, if forcibly separated, bleed and smart so severely, that the patient closes them again, in which state they frequently unite, and give origin to an anchyloblepharon. In the most inveterate cases of the disease, the conjunctiva of the globe is also affected.

The genuine psorophthalmia, as the name implies, is always induced by the poison of itch, and is either caused by the direct application of this matter to the eye-lids, or from its suppression in some other part of the body[1]. Other cutaneous affections, as Doctors Willan and Bateman have shown, are particularly disposed to affect the eye-lids; hence we find diseases nearly resembling the psorophthalmia frequently concomitant on the different varieties of Porrigo, Psoriasis, &c. In children they are frequently accompanied with the crusta lactea, favus, tinea capitis, chaps, and ulcerations behind the ears, or within the meatus auditorius.

It is of the first importance in the treatment of this disease to enforce cleanliness. The lids should be washed frequently through the day with tepid water, or milk and water, and the branny crusts formed about the roots of the cilia, carefully removed; after which the ulcers may be gently smeared with any mild ointment[2]. In the more chronic forms of the disease, it is necessary to resort to more stimulating applications; but these should always be proportioned to the irritability of the parts diseased. Professor Beer has recommended the following formula:—

---

[1] It is difficult to believe this connexion between psora and psorophthalmia, as patients with the latter disease are too apt to rub their eyes on account of the itching, and yet are never known to propagate the infection to their hands. Patients, moreover, labouring under psora, will have remained months without psorophthalmia. Professor Beer refers the psorophthalmia, in some cases, to a sudden cure or repulsion of psora. On the whole, psorophthalmia may be safely said to be connected with a strumous diathesis, and is more especially induced by causes influencing such a constitution of body, as damp and cold, indigestion, excessive vinous stimulants, bad food, &c. EDITOR.

[2] The necessity of cleansing, previously to employing local applications, is obvious. Our attention should be directed to removing the incrustation resulting from the ulcerations, and adherent to the cilia. The furfuraceous, or branny crusts, are

℞ Butyr. recent. insulsi. Unc. semis.
Cupri. sulph. gr. x.
Camphor. gr. iv.
Tutiæ pptæ. gr. vj. M. exactissime ut fiat Unguentum.

This may be exchanged for the white or red precipitate salves*[1].

Where the disease is caused by some general affection of the system, or connected with cutaneous eruptions in other parts, it will be necessary to resort to general remedies for the cure. The most efficacious of these are the different preparations of sulphur and antimony, with the occasional use of the warm or sulphurous bath.

* Professor Hufeland's ointment is composed of equal parts of fresh butter, yellow cerate, and red precipitate.

---

merely cuticular, and result from the inflammation of the neighbouring skin. It is important to prevent continued agglutination of the cilia by the purulent crusts, as the consequent displacement of the eye-lashes not only establishes an unsightly and permanent irregularity in the growth of the cilia, but also maintains or aggravates present disease of their roots. Scarpa advises the removal of the diseased hairs—a measure of considerable utility in the analogous affection of tinea capitis. EDITOR.

[1] Warm clothing, daily exercise to perspiration, and counter-irritation, in or behind the ears, with occasional doses of infus. ros. and Epsom salts, will be generally productive of relief. Next to the ung. hydr. nitrico-oxydi, one part of ung. hydr. nitrat. diluted with eleven of ceratum cetacei, is most useful. ED.

The patient should be enjoined a strict regimen, and carefully abstain from all salted or highly seasoned food.

Hordeolum.—Stye.

Professor Beer makes two species of this disease, the hordeolum *idiopathicum* and *scrofulosum.* The former is nothing more than a phlegmonous tumour of the eye-lid, having the same origin, progress, and termination as phlegmon in any other part of the body. Thus it commences with a sensation of burning or itching in the lids, and a very short time a small inflammatory tumour or boil (*furunculus inflammatorius*) makes its appearance upon their borders; this gradually increases so as considerably to impede the motions of the lids; it assumes a dark red colour, and is very hard and irritable. The patient complains of severe and lancinating pains darting through this tumour, extending even to the ball of the eye. The sebaceous glands, sympathizing in the affection, have their secretions increased, and the lids are firmly agglutinated during sleep.

In the second stage, the redness is observed to increase suddenly, the patient feels a sensation of weight or heaviness in the lid, the tumour becomes softer and more conical, and a yellowish red spot is now perceptible at its apex. These symptoms are all characteristic of the presence of matter. The abscess, if not timely opened, bursts, the matter flows out, the swelling disappears, and a spontaneous cure of the disease is thus effected.

The result, however, is not always thus fortunate; the tumour being arrested in its progress, does not proceed to suppuration, but assumes a schirrous state, and there is left a round hard tumour, either immediately beneath the integuments, or the conjunctiva of the eye-lid. This tumour is not in the least painful, and the skin over it is hardly discoloured. It is known by oculists under the various names of *chalazion*, *grando*, *lithiasis*, *tophus*, &c.

The *Treatment* of hordeolum does not differ from that of common phlegmon. In the first stage, it will be necessary to apply lotions of cold or iced water, vinegar and water, lead water, &c. in order to bring about a resolution of the tumour. If suppuration, however, has already taken place, the cold should be laid aside, or exchanged for warm applications, as poultices of bread and milk, roasted apples, &c. The abscess soon opens spontaneously, and should be kept discharging as long as its edges remain hardened or callous. It is then to be dressed with simple diachylon or court-plaister, under which treatment it readily heals.

When there exists in the constitution a strong disposition to the formation of stye, it is often corrected by the frequent application of the diluted unguentum citrini, or other stimulating ointments, with the use of some slightly astringent lotion.

The *chalazion,* or indurated state of the lid, consequent upon stye, is generally dispersed by means of friction, with the mercurial camphorated ointment, or by the emplastrum cicutæ. Where it does not yield to this treatment, it is easily extirpated.

Granular Conjunctiva.—Sarcoma Palpebrarum.

This is most commonly the sequela of purulent ophthalmia, more especially when it has severely affected the eye-lids. It is characterized by a rough, scabrous, or granulated state of the palpebral conjunctiva, with a gleety or puriform discharge from its surface. From the constant friction of the eye-lids upon the globe, and the preternatural swelling of their lining membrane, retarding the flow of blood through the vessels, the sclerotic conjunctiva is rendered varicose, and the cornea assumes a dusky appearance. Dr. Vetch compares it to the green colour presented by the fracture of a common flint; sufficiently diaphanous to admit the perception of light, yet too opake to render external objects visible to the patient, excepting by their shadows; rendering it impossible also to ascertain the colour of the iris, or to distinguish the limits of the pupil. The patient complains of a sensation similar to that produced by sand, or other foreign bodies lodged beneath the eye-lids; the eye is very irritable to light, and there is a troublesome and constant epiphora.

The granular structure of the lids, in its forming stage, is highly sensitive and vascular, bleeding most profusely when cut into, and possessing, like all granulated surfaces, an astonishing power of growth and reproduction *.

In the recent stage of the disease, the cure is easily accomplished by the application of a few leeches to the eye-brows, and pencilling the part once or twice daily with Sydenham's tincture, or the mercurial salves recommended under the head of opacity of the cornea. When these do not succeed, recourse may be had to the more powerful escharotics. The sulphate of copper, and the nitrate of silver are, perhaps, the most efficacious [1]; the latter, however, should never be applied so long as to produce a slough; but used only with

* Vetch. Op. Citat.

---

[1] The employment of these should be directly succeeded by ablution with tepid water, and the application of a few leeches externally, or one to the conjunctiva itself. Counter-irritation is of great utility, and the exhibition of occasional active aperients important. The upper lid should be completely everted in examination, as there is sometimes at the angle, where the conjunctiva passes from the globe to the lid, a crescentic fringed fold, not unlike a cock's comb. From the irritation produced by this, I have seen tedious inflammation of cornea result. EDITOR.

the greatest delicacy, so as to change, as it were, the diseased condition of the part.

Some surgeons have recommended the excision of the granular structure with the knife or scissors; but this should only be attempted when the granules are hard, insensible, and prominent, or hang like peduncles from the surface of the lids. Dr. Vetch advises in this state of the disease, the application of a little burnt alum, or verdigris, to the everted eye-lids, washing it off again, before returning them, with an elastic gum syringe.

Trichiasis.—Inversion of the Eye-lid. Distichiasis.—Double row of Eye-lashes.

Trichiasis appears in one of two forms, either the cilia are turned inwards upon the eye, without any incurvation of the tarsus, or the tarsus itself is inverted together with the cilia. Some authors have given to the latter the name of *Entropion,* to distinguish it from the former, or the trichiasis. It seldom happens that all the cilia of the same lid are inverted, unless there is at the same time a complete inversion of the tarsus; more commonly the disease is only partial, or confined to a small border of the lid. The effects produced by such inversion are the most distressing; each motion of the lid produces pain and irritation in the eye-ball; and from this incessant friction, there is kept up a continual weeping of the eye. In the ultimate stage of the disease, there is opacity of the cornea, with vessels overshooting its margin; or the most inveterate form of pannus is induced, and the patient is nearly or completely blind.

When, instead of a single, there exists a double row of cilia, inverted upon the eye, the disease is termed *Distichiasis*. Scarpa, and other writers of much distinction, have denied the existence of such a form of the disease. The fact, however, is proved by the very extensive experience and observations of Professor Beer. I have seen more than one instance, where these pseudo-cilia were very apparent, and differed from the natural, not only in their position, but in their colour, form, length, &c. The disease very rarely attacks the whole of the lid, but appears in distinct and separate patches along its margin.

The *Causes* of these diseases are not always very apparent. Most commonly they may be traced to inflammation of the inner lid or tarsus, which has terminated in ulceration and cicatrization. The strumous ophthalmia of the glands which border upon the margin of the lids, is very apt to terminate in trichiasis. It was formerly a common termination of the variolous inflammation of these glands. It is a common sequela of psorophthalmy, if long neglected or improperly treated. The disease, in some cases, arises from a redundancy, or relaxation of the internal skin covering the palpebræ, from the loss of the natural elasticity of the tarsus, or from a thickened and callous fold of the conjunctiva lining the palpebra.

Cure. Where the disease depends upon the inversion of a few scattered cilia only, and is unconnected with any derangement in the structure of the tarsus or eye-lids, it may, in general, be remedied, by plucking out these hairs by means of a small forceps. The pseudo-cilia should be removed in the same manner.

When the disease is caused by an inversion of part or the whole of the tarsus, it is evident that the relief procured by pulling out the cilia can be but transient; and that the principal object of the surgeon should be to correct that morbid alteration of the cartilage, which constitutes the disease. This is best and most effectually done by taking out a portion of the integuments opposite to that part of the cartilaginous border which is inverted. By the contraction and cicatrization of this wound, the tarsus, together with the cilia, will be drawn outward into their natural position. The operation is best performed by the forceps of Bartisch, (represented in fig. 9.) and the curved scissors. The surgeon, taking the instrument in his left hand, raises a fold of the skin immediately opposite the part where the trichiasis is greatest. Care should be taken in raising up this fold, that no portion of the orbicularis muscle be included.

The patient being directed to open his eye, the tarsus and cilia will be seen to have resumed their natural place and direction, provided a sufficient quantity of the integuments has been seized with the forceps. The fold, so included, is now to be cut off with a single stroke of the scissors. Little or no hæmorrhage follows the operation, and this is easily checked by a little cold water.

If the excision be properly made, an oblong, oval-shaped wound will be the result. The lips of the wound are then brought together with sticking plaister, and a compress and bandage applied, as after the operation for cataract; it is seldom or never necessary to employ sutures[1].

---

[1] "In cases of chronic inflammation, where there is a commencing but incomplete, general inversion of the cilia, the cure of the inflammation will be sufficient to restore the conjunctiva to its natural state, and the cilia to their original direction; but when this proceeds too slowly, the application of the sulphuric acid, recommended by Kelling and Quadri, should be resorted to, and will be found sufficient. Indeed, in many cases in which there is little incurvation of the cartilage, and a moderate contraction of the angles, it will supersede further operation. A small quantity of concentrated sulphuric acid is to be applied by means of a piece of smooth solid wood, to the centre of the affected part of the lid, and rubbed along on an oval space, a little exceeding in length the part on which the inverted hairs are situated, and from three to four or six lines in width, according to the inveteracy of the disease. The part ought to be wiped dry, after the acid has been applied about ten seconds, in order to prevent any of it from getting into the eye. The application is now to be repeated, taking care that it may approach the edge of the lid, and touch the parts immediately over the inverted eye-lashes; and it is to be repeated a third or fourth time, until the contraction of the parts draws the hairs from within outwards, or to their natural situation."—Guthrie's Lectures, p. 30. I have heard patients gratefully acknowledge the relief produced in a few minutes by this operation. EDITOR.

Dr. Crampton's method of operation in cases of *partial* trichiasis will be found to answer very effectually in removing the distortion. Conceiving the disease, in general, to originate from a thickened and contracted state of the conjunctiva, he has devised the following operation for its cure. The eye-lid being well turned out by an assistant, the surgeon with his lancet should divide the broad margin of the tarsus completely through, by two perpendicular incisions, one on each side of the inverted hair or hairs. This being done, the extremities of these perpendicular incisions should be united by a transverse section of the conjunctiva of the eye-lid[1]. The portion of cartilage contained within the incisions can then, if inverted, with ease be restored to its original situation, and retained there by small slips of adhesive plaster, or (perhaps what is better) by a suspensorium palpebræ, adapted to the length of the portion of the tarsus, which it is intended to sustain*[2].

* Vide *Essay on Entropion,* by R. Crampton. London, 1815.

---

[1] "I have always found," says Mr. Guthrie, "this division to be useless and even injurious. It is useless, because it has no influence on the part, as a simple division of that kind unites or fills up in a very short time; and it is injurious, because, if made across the cartilage, it is apt to form a ridge or cicatrix, which irritates the eye; and of this, among others, I have seen one particular instance."—Lectures, p. 33. This subsection of the conjunctiva may, however, increase the temporary facility of eversion, or rather restoration, of the tarsus to the natural position. EDITOR.

[2] In cases of a circumscribed inversion, produced by cicatrix, from burn or wound, Mr. Travers says he has found an effective remedy in an operation similar to that of Dr. Crampton. ED.

Mr. Saunders has recommended the excision of the tarsus itself, either in whole or in part, according to the extent of the disease; but this is a most severe and tedious operation * [1]. Dr. Jæger, of Vienna, instead of removing the tarsus, takes away with a knife, or pair of scissors, the external border of the eye-lid only, or that part which contains the cilia; and this practice has obtained the sanction of Professor Beer [2].

* The same operation was practised by Dr. Dorsey, of Philadelphia. Vide *Elements of Surgery*, by John S. Dorsey, Philadelphia, 1818.

---

[1] "I have seen three persons," says Mr. Guthrie, "on whom this operation has been performed, and in two of them by Mr. Saunders. In all the deformity was considerable, and the relief obtained only partial."—Lectures, p. 25. Mr. Travers also adverts to the permanent deformity it entails, as well as the great and unnecessary severity of its execution. Synopsis, p. 356. EDITOR.

[2] The operation recommended by Mr. Guthrie, as equal to the cure of the worst cases, consists, for the upper lid, in two incisions; the one close to the outer canthus, and the other, not including the punctum lachrymale, continued by repeated touches of the scissors, until that part of the eye-lid containing the tarsal cartilage is perfectly free, and evidently not acted upon by the orbicularis. The included portion is then everted, any vicious curvature of tarsus is corrected by slitting it in a direction at right angles to the perpendicular incision, an external fold of integument is cut away (between the first incisions), and the divided parts brought together by ligatures, which are attached to the forehead by plaster. Great attention in the subsequent dressing is paid to the prevention of union by first intention, even at the angles of eversion, and the parts are allowed only to reunite by granulation. The operation on the under eye-lid consists of a perpendicular incision, with scissors, at the outer angle, carried downwards to the extent of perfectly relieving the inversion. This incision divides the orbicularis, and renders its fibres powerless. The everted part is then secured

Where the disease is caused by a callous fold of the conjunctiva, it is easily removed by excising this part of the membrane [1].

Ectropion.—Eversion of the Eye-lids.

The palpebræ in this disease are turned outwards, so that the inner surface of the lid is made visible. The lower lid is most generally affected; sometimes both are attacked in like manner. From the constant exposure of the eye to the air, and the small particles floating in it, the conjunctiva is rendered red and inflamed, the cornea opake, and the vision is more or less impeded. The protruded portion of the conjunctiva is commonly swollen and granulated; sometimes it presents a smooth or villous surface. As the puncta lachrymalia are turned from their natural direction, the

---

by ligature, fastened below the jaw, and the principle of procuring granulation strictly attended to in the dressing. For other important observations relative to the above, see Lectures on Operative Surgery of the Eye, p. 31. Scarpa doubts, that the action of the orbicularis can be a permanent cause of inversion. It may, however, be reasonably supposed, in inverate cases attended with great irritation, where not only its excitability is increased, but its sphere of action altered by almost permanent contraction; that this muscle, if not an original cause, may at least become of important consideration in treatment. EDITOR.

[1] In removing these folds, as well as encysted tumours (which are also occasionally causes of inversion, from their pressure outwards inclining the tarsal edge inwards), care must be taken not to risk permanent inversion by extent of cicatrix. EDIT.

tears are no longer absorbed or carried through their natural channel, but overflow the cheek.

The disease most commonly arises from contraction of the integuments of the lid, consequent upon wounds, burns, ulcers[1], &c., or from a soft and fungous swelling of the conjunctiva lining the lid. Hence it is a common sequela of purulent eye. It is caused in some instances, and especially in old persons, by a relaxation or unequal action of the orbicularis muscle.

The *Cure* of this disease is at all times difficult. Where the ectropium has been caused by the shortening of the integuments, or the cicatrization of ulcers, it has been proposed to divide the cicatrix, and keeping the edges of the wound as far asunder as possible, permitting it to fill up with new granulations. This is seldom attended with much advantage; and, in general, it will be found preferable to remove a triangular portion of the tarsus; uniting afterwards the two sides of the triangle by a suture, in the manner recommended by Sir William Adams.

---

[1] Mr. Guthrie ascribes one form of eversion, connected with inveterate chronic inflammation, to excoriation, contraction, and hardening of the external integument without actual cicatrix.—See Lectures, p. 55. The venereal ulceration of the under lid is attended with partial eversion, while the disease is progressive; this circumstance manifestly results from the non-resistance in the tarsal edge, where this cartilage is partially destroyed. The ectropium and the disease yield readily to mercury and sarsaparilla.

EDITOR.

If the disease originate from tumefaction of the conjunctiva, consequent upon purulent ophthalmia, and is not of long standing, it will readily yield to the action of slight astringent substances, as the tinctura opii, the red precipitate salve, &c. or touching the part slightly with the lunar caustic. The everted lid, if possible, should be immediately returned, and secured in its place by a compress and bandage *. Where the protruded conjunctiva is callous and insensible, it may be removed with the scissors, avoiding, at the same time, any injury to the tarsus [1].

Blepharoplegia.—Paralysis of the Eye-lid.

This consists in a loss of power in the levator palpebræ to raise the lid. The upper eye-lid is observed to hang loose and pendulous over the eye, and the patient can neither elevate nor bring it perfectly in contact with the lower lid, so as to close the eye. If lifted from the eye, it gradually sinks down again by its own gravity, as soon as the fingers are removed which support it. The lid is slightly œdematous, and the patient com-

* Vetch, Op. Citat. p. 229.

---

[1] A regulated and cautious application of nitric, or other caustic acid to the diseased conjunctiva, is found to be advantageous.
EDITOR.

plains of a sensation of heaviness, or tingling in the part; the eye itself looks dull, the iris is less irritable, the pupil dilated *, and the vision much impaired, or completely destroyed.

Paralysis of the lid is most commonly induced by blows or contusions of this part, or of the forehead, with or without wound of the integuments. It is sometimes caused by the long continued use of emollient applications to the eye-lids during inflammation of the eyes. It is often combined with a palsy of some of the other muscles of the eye or face †; sometimes it is found to precede or follow general palsy, or is symptomatic of the formation of water within the brain. Worms in the stomach, or alimentary canal, have been known to produce a greater or less degree of blepharoplegia.

Little benefit is, in general, derived from the employment of internal remedies in this complaint; and we rely for its cure chiefly upon external or topical applications. The most serviceable of these are, frictions with a dry flannel,

---

* The affection of the iris in this disease may be accounted for from its receiving nerves from the same trunk which supplies the levator palpebræ.

† In this case, it is generally the superior and inferior recti, together with the rectus internus, which are affected; as these receive their nerves from the same branch which supplies the levator palpebræ. The eye, in consequence, is turned outward, or towards the temple. Sometimes we find all the muscles of the eye-ball equally affected; the eye, in this case, remains perfectly motionless in its socket.

or the mercurial ointment; stimulating lotions of camphor, hartshorn, cantharides, &c., together with blisters in the vicinity of the part. Professor Schmidt has related several cases of the disease, in which a complete cure was effected by the insertion of a small issue just below the ear, or in the cavity formed by the angle of the jaw and mastoid process*[1].

A disease very frequently confounded with that now described, is the

Blepharoptosis.—Lapsus Palpebræ Superioris.

It differs from the former in being caused by a morbid elongation or enlargement of the integuments of the lids; preventing, by their bulk and weight, the proper action of the levator muscle. The atony or paralysis of this muscle is, therefore, merely the sequela of this swelling of the external skin. If the patient attempt to raise the lid, the contraction of the muscle may be distinctly seen, but it is insufficient to overcome the weight

* *Abhandlungen der Kaiserlich-kœniglichen medicinisch-chirurgischen Josephs-Academie zu Wien.* Band II. 1801.

---

[1] On the subject of partial paralysis from the local affection of the portia dura, see Dr. Monteath in Weller's Manual, vol. i. p. 105., and a paper by Mr. Shaw, in the 12th volume of the Medical and Chirurgical Transactions. In this form, connected with inflammation and pressure in the aquæductus Fallopii, local depletion in the vicinity of the ear, and subsequent counter-irritation, or the employment of stimulating liniments, is indicated. EDIT.

of the integuments, which press and keep it down. If he is relieved of this superincumbent weight by the surgeon, who lifts up this fold of skin between his fingers, the muscle is permitted to act, and the patient is enabled to open his eye. As soon, however, as the fingers are removed, the lid relapses into its former state. When this fold or thickening is not seated immediately in the middle of the lid, but rather towards one or other of the canthi, the patient maintains the power of raising the lid in the sound canthus, and the eye by constantly seeking this outlet, acquires a degree of squinting.

The *Excision* of so much of the integuments as will enable the levator muscle to resume its action, is the only mode of relieving this affection; and the operation differs in no respect from that pointed out under the head of trichiasis[1].

Blepharospasmus.—Spasm of the Eye-lid.

This consists in an involuntary contraction or spasm of the eye-lid, whereby the eye is perfectly closed. The patient is not able, by any act or power of his will, to separate the one from the other; and it is effected with the greatest difficulty by the surgeon himself. Like blepharoplegia, this disease is never dependent upon any organic change in the lid, but arises solely from spasmodic affection of the muscles of the part. The integuments covering the lids and brow, from this action of the muscles, are violently corrugated, so that the countenance exhibits the strongest expression of passion. If the eye be examined by separating the lids forcibly from each other, it will be found of a dull appearance, the pupil somewhat dilated, the iris sluggish, and the vision much impaired. The disease is generally preceded by a species of hemicranial pain, at first transitory, but becoming after a few days more permanent; in some instances, there is a violent pain darting through the ear of the side afflicted.

---

[1] Sometimes, as after inveterate strumous ophthalmy, attended with exceeding intolerance of light, a debility in the levator palpebræ exists. I believe advantage may be derived, under these circumstances, from the application of belladonna to the lid and brow at night. EDITOR.

A slight degree of this affection is often induced by foreign bodies lodged beneath the eye-lids, or by excessive light made to fall suddenly upon the eye. It is a common symptom, as already noticed, of the strumous ophthalmia; and a frequent concomitant likewise of epilepsy, hysteria, chorea, &c.

The disease yields, in general, to the same remedies recommended for the use of blepharoplegia *.

---

* Sometimes this spasm affects one or more of the muscles of the eye-ball, whence it has obtained the name of *Tetanus bulbi oculi.* This is generally symptomatic of some general affection,

Concretions of the Eye-Lids.

Nosologists have generally distinguished two varieties of this affection; *anchyloblepharon,* in which the edges of the eye-lids are united in whole or in part with each other, and *Symblepharon,* in which the adhesion exists between the inner surface of one or both lids and the eye-ball. Both diseases are commonly the effect of inflammation, and often exist together in the same individual. They are most apt to follow ophthalmies produced by burns or scalds of the eye, and by the concentrated mineral acids, lime, or other acrid substances falling into the eye. The same disease is frequently induced by an obstinate psorophthalmy. It is, in many instances, congenital, but may always be traced to inflammation of the eyes, which has existed *in utero.* The adhesion in all these cases, is seldom direct; more generally it takes place, as in other parts of the body, through the medium of a pseudo-membrane.

The operation, or the division of the parts united, is very simple, and easy of execution.—Where the adhesion exists between the edges of the eye-lids only, a small blunt-pointed bistoury should be introduced into the inner canthus, and

---

or is excited by the different depressing passions. In some instances it is caused by the action of poisons upon the stomach, more especially of belladonna, hyosciamus, &c.

carried forward the whole length of the adhesion, taking care to avoid the eye-ball, or cutting into one or other of the lids. As these divided surfaces, if permitted to come into contact, would again unite, it is necessary in the after-treatment to keep them apart, by interposing a small slip of charpie smeared with any mild ointment. The tendency to union, however, is so great in many instances, that it is impossible to effect a cure by a single operation; and it becomes absolutely necessary to repeat the division.

A morbid state of the conjunctiva, very analagous to that just described, is the formation of a *frænum*, or of one or more bands between this membrane and the eye-lids. The same result is often witnessed in other parts of the body, from wounds, burns, &c., or after the removal of tumours. The disease is sometimes productive of very great inconvenience. I have seen one instance in which it produced complete strabismus, so that the patient, in order to enjoy distinct vision, was obliged to cover the eye affected.

Various escharotic substances have been recommended for this affection, but, in general, they only aggravate the evil; and the disease is best remedied by the division of these bands or fibres.

Tumors Cystici Palpebrarum.—Encysted Tumours of the Eye-Lids.

The eye-lids, like the common integuments of the body, are liable to have small cysts or tumours form in them; which contain either a fluid, honey-like, or sebaceous matter. It is according to this difference in their consistency, that they have obtained the names of *atheromatous, meliceerous,* or *steatomatous* tumours. The two first of these are most commonly seated in the upper eye-lid, and generally towards the outer canthus; the steatomatous seldom affects the lid itself, but is most frequently situated in the vicinity of the eye-ball.

The immediate seat of these tumours is, in general, the cellular substance which connects the integuments of the lid with the orbicularis muscle; sometimes they are deeper seated, and covered not only by the orbicularis but the levator muscle. In some cases, the disease is seated near the tarsus, eventually extending to the cartilage itself; and this has led many pathologists to suppose that the tumour results from some affection of the sebaceous glands.

The disease generally commences with a small, soft, elastic, and circumscribed tumour in the upper eye-lid, or its immediate vicinity; it is not accompanied with the slightest pain, nor is the skin in the least degree discoloured. The more fluid species sometimes grows to the size of a pigeon's or even a small hen-egg, and there is a very perceptible fluctuation in the tumour; the steatomatous is seldom or never larger than a common filbert, and is without fluctuation. Although of this great bulk, they are never painful, and the only inconvenience they occasion, is the impediment they give to the free motions of the lid, or the pressure they excite upon the globe of the eye. Sometimes they cause a complete eversion of the tarsus and cilia.

In addition to the fluid or lardaceous matter contained within these tumours, there is sometimes found a number of small, thin, and short hairs, but entirely without bulbs. In some instances, a horny excrescence is seen to grow from these tumours. I have seen one nearly an inch in length, resembling very much in figure and colour the beak of a fowl. The sac itself is generally very tough and thick.

The most simple and effectual method of curing these tumours, is by total and complete extirpation. It is not sufficient that part of the tumour only be removed, but the whole of the sac should be completely extirpated[1]. In some instances, indeed, this is extremely difficult, or even impracticable; as where the posterior part of the sac is connected with the tarsus, or the tumour is seated directly over the lachrymal sac, or between the anterior hemisphere of this body and the orbicularis muscle. The difficulty of the operation is also increased, where the tumour is seated near the small tendon of the trochlearis muscle; for if this be divided, the motions of the eye are considerably impaired. In all other cases, the sac is easily and readily removed. A very great advantage is gained to the operator, by moving the sac to and fro in the lids a few days previous to the operation. This tends to break up, in a great measure, the adhesion between the loose cellular substance and sac, so that the latter is much more easily separated. In some cases the tumour may, in this manner, be pushed upon the superior orbitary ridge, where it can be firmly held upon the bone by an assistant during its extirpation.

---

[1] The small sebaceous tumours in the vicinity of the tarsus are easily turned out by division of the skin. Sometimes they require further excision with scissors. In this case it may be necessary to touch any remaining portion of the adherent cyst with some caustic. The nitric and sulphuric acids are, perhaps, most convenient for this purpose. EDITOR.

Where the tumour is seated deep within the eye-lid, or beneath the orbicularis and levator muscles, it is better to evert the eye-lid, and cut upon the sac from within.

CHAPTER II.

OF THE DISEASES OF THE LACHRYMAL ORGANS.

Inflammation of the Lachrymal Gland.—
Dacryoadenitis.

THE inflammation in this disease generally commences in the cellular substance which surrounds the gland; extending thence to the tissue which envelopes its acini, and seldom or never affecting the substance of the gland itself. The first symptoms which mark its invasion are an unpleasant dryness of the eye, and a fixed pulsatile pain of the temples or outer canthus, which extends into the orbit, or is propagated along the brows and temple to the jaws and ear. A hard, tense, and painful swelling is soon perceived in that part of the upper eye-lid covering the lachrymal gland. The conjunctiva, excepting that portion of it near the external canthus, is seldom red or inflamed. From the gradual increase of the lachrymal gland, the eye is protruded from its socket, and the cornea is driven inward and downward towards the root of the nose. The motion of the globe outwards is generally impeded, from some affection of the rectus superior and externus muscles. Along with these symptoms, the sight is observed to decline more and more, the pupil contracts or is immoveably fixed*, the pain increases, and there supervenes high inflammatory fever, accompanied with more or less of delirium.

If the inflammation is not discussed, the gland suppurates; the pain now is of a more throbbing kind, and the patient complains of an uneasy sensation of weight or coldness of the upper eye-lid. A yellowish spot is observable on the conjunctiva of the bulb, or external surface of the eye-lid, and a distinct fluctuation is felt in the tumour.

The disease is most common in young persons, and particularly such as are of a strumous habit. In the latter case, the inflammation is generally of a chronic nature, and the tumour may remain stationary for a long time. It is commonly excited by cold, or violent contusion of the gland; in some instances it has been caused by immoderate weeping, or by inflammation of the conjunctiva or eye-lid.

As there is always danger, lest the inflammation extend to other parts of the orbit, or involve the eye itself, it will be necessary in the *Cure* of this affection, to adhere to the strictest antiphlogistic measures. One or more general bleedings should be advised, after which we may resort to

---

[*] The affection of the iris, in diseases of the lachrymal gland, is easily accounted for from the connexion of the nerves supplying this organ with the ciliary nerves, through the ophthalmic ganglion.

the use of leeches and blisters. These means may be assisted by cold lotions applied to the part, and the occasional use of purgatives.

If the inflammation do not yield to this treatment, or the swelling advances to suppuration, warm poultices of bread and milk, or fomentations of cicuta, hemlock, and the like, should be substituted for the cold lotions. The abscess should never be permitted to open spontaneously, as a troublesome fistulous sinus would prove the consequence. As soon, therefore, as the least fluctuation is perceptible in the tumour, the surgeon proceeds to open it with the lancet. The incision is seldom practicable from within; but is, in general, made from the external surface of the lid, and in a parallel direction with the fibres of the orbicularis muscle. The point of the lancet should be directed towards the groove of the gland, and the opening made of sufficient size to give free vent to the matter. The pain immediately subsides on the discharge of the matter, the protruded eye-ball returns to its socket, and the vision gradually improves; but a greater or less degree of luscitas, or squinting, is generally the consequence. Sometimes the suppuration extends to the bones of the orbit, causing a troublesome fistula, and a continual discharge of an offensive ichorous fluid from the wound. The presence of caries may be easily ascertained by the introduction of a small probe.

More commonly, one or more of the excretory ducts of the gland are wounded, and there is a discharge of tears, or of tears mixed with matter, from the gland; *(fistula glandulæ lachrymalis,)* or a small capillary opening is left in the upper eye-lid after the ulcer has already healed, through which there is a continual oozing of tears. The only mode of relieving such an affection is, by the application of the lunar caustic, or by the actual cautery introduced to the bottom of the wound.

Scirrhus of the Lachrymal Gland.—Scirrhus Glandulæ Lachrymalis.

The lachrymal gland, like the other glands of the body, may become the seat of scirrhous enlargement. The disease commences with a tumour near the external canthus, thrusting forward the superior palpebra. The eye-ball is at the same time forced into the opposite direction, or downward and forwards, and in many instances is driven so far without the axis of vision as to impair considerably the sight. There is little or no pain in the commencement of the disease; as the gland enlarges, the patient experiences a sensation of pressure and tension, especially on moving the eye, and complains of an unpleasant dryness of the organ. If the tumour be examined, it will be found hard and unequal, or lobulated, and void of all fluctuation. The disease is at all times dangerous, as it seldom confines itself to the gland alone, but extends to all the adjacent parts.

Where the ordinary remedies for scirrhus prove unsuccessful, recourse should be had to extirpation. This should never be too long delayed, as the chance of success is always proportionate to its early performance. Professor Himly recommends the operation to be practised through the upper eye-lid. It is preferable, perhaps, to divide the outer canthus, and dissect the tumour from beneath the lid. After the removal of the gland, the eye generally returns again to its former position in the orbit *.

Hydatid of the Lacrymal Gland.—Hydatis Glandulæ Lachrymalis.

This disease is of very rare occurrence. It commences with a dull pain about the orbit, which in a few days extends itself over one half the head. The eye-ball at the same time is rendered dry; and in a few weeks, from the great rapidity of the swelling, projects considerably out of the socket. If the eye be examined in the situation of the lachrymal gland, there will be found a tense elastic swelling, yielding slightly to any pressure made with the finger, but recovering its size again as soon as this pressure is removed. The progress of the disease is, in general, very rapid, so that in a few weeks from the first attack the patient complains of loss of rest, grows delirious, and eventually dies, with all the symptoms of confirmed apoplexy. The cornea, in the decline of the disease, assumes a dull glassy appearance. Under more favourable circumstances, the hydatid bursts, the parts suppurate, and a fistulous opening is formed, through which there is continually a small quantity of limpid fluid.

---

* Vide Mr. Todd, *On the Diseases of the Lachrymal Gland*, in the Dublin Hospital Reports, vol. iii. Also Schmidt, *über die Krankheiten des Thränen-Organs.* Wien, 1803.

It is hardly possible to confound this disease with the scirrhous affection just described; the rapid progress and violence of the symptoms, and the distressing headache and delirium, are sufficiently characteristic of its nature. If more decisive evidence be wanting, it will be found in the spherical shape and peculiar elasticity of the tumour.

The disease may be in some measure relieved by puncturing the sac with a small lancet, and drawing off its contents. The puncture should be made in the most prominent part of the swelling, between the eye-ball and lid; and the sac, if possible, taken away with a pair of forceps. Where this is not practicable, the wound is to be kept open by a tent, as long as any fluid exudes, in order to destroy the sac.

Epiphora.—Moist or Watery Eye.

The term epiphora formerly included any accumulation of tears on the anterior surface of the eye, or their involuntary flow over the cheeks, whether dependent upon a more copious secretion from the gland, or some obstruction in the lachrymal passages. It is now more properly confined to the former of these states only; the latter being distinguished under the name of *Stillicidium Lachrymarum.*

Epiphora may result from a great variety of causes. Affections of the mind, or foreign bodies lodged beneath the eye-lids, may excite the lachrymal gland to an undue secretion of tears. Most commonly it precedes, or is attendant upon inflammation of the outer membranes of the eyes, and disappears with the subsidence of such inflammation. In irritable constitutions, this weeping of the eye sometimes continues, after all appearances of inflammation are removed, and is especially aggravated when the patient exposes himself to a damp and cold atmosphere. The ophthalmia accompanying small-pox, measles, and the various exanthemata, is very apt to leave behind a troublesome epiphora. Where this makes its appearance before the eruption, it is, in general, of little importance; should it occur, however, after the eruption, or in the decline of the disease, it may prove very obstinate. The cure is to be accomplished by blisters behind the ears and to the nape of the neck, warm compresses applied to the eye, astringent collyria, frictions of mercurial ointment, and camphor in the region of the eye-brow, &c.

Epiphora may be caused by the poison of syphilis, acting either locally or upon the general system; hence it is frequently a symptom of lues, and can be cured by mercury only. It is a common affection in persons of a scrofulous habit, more especially where the meibomian glands are at the same time affected. The attacks in this case are sometimes periodical. The flow, however, is incessant and copious, where there is superadded to this strumous taint of system the slightest inflammation of the organ; hence it is the most characteristic symptom of strumous ophthalmia.

The general treatment is the same as that employed in scrofula, viz. tonics administered internally, with blisters; or the tartar emetic ointment applied to the surface.

Epiphora is frequently the sequela of arthritis, when it makes its appearance in more advanced years. There is generally accompanying this form of the affection a sensation of pain and tension about the lachrymal gland, extending in some instances to the neighbouring parts, and more particularly towards the temples. The pain comes on in regular paroxysms at night, and is relieved by a flow of tears. If this be suddenly checked by exposure to cold air, or the employment of cooling spirituous collyria, the consequence may be a violent ophthalmia of difficult and tedious cure.

Scurvy is frequently combined with epiphora. As the disease, however, is comparatively of rare occurrence in this country, this combination is scarcely entitled to notice. An inordinate secretion of tears is often a concomitant of catarrhal fever, or a common coryza. It is of little importance, as the discharge always ceases with the subsidence of the catarrh.

Stillicidium Lachrymarum.

The causes of this affection are more obscure. It is often the result of purulent ophthalmia, or those diseases which distort the palpebræ, and so prevent the puncta reaching the saccus lachrymarum; as tumours of the inner canthus, entropium, &c.; or it may happen from chronic thickening of the membrane lining the puncta and ducts. Sometimes the disease arises from a constricted state of the puncta, or even from an entire obliteration of these orifices. In some cases the puncta are closed by a delicate membrane, and it is possible to relieve this affection by dividing the membrane with a common needle, and preventing the union of the part by a small canula or probe, introduced every two or three hours into the opening. Morgagni relates an instance of congenital deficiency of the puncta, but this is exceedingly rare.

A stillicidium of tears is frequently the result of a dilated or patulous state of the puncta. The disease most commonly occurs in old persons, and is accompanied with more or less separation of the lower lid from the eye. It is in some measure relieved by the use of astringent or tonic collyria, but is seldom or never cured.

It may happen that the ducts are united in some part of their course, from previous suppuration or abscess; and the tears in this manner prevented from reaching the sac. Under these circumstances, it has been recommended to introduce a seton through the ducts and nares. Others have advised a new passage to be made into the sac from the interior commissure of the eye-lids; neither of these methods, however, are in the least advantageous, and the disease must be considered as wholly irremediable.

The most frequent causes of stillicidium lachrymarum are strictures in some part of the lachrymal duct, or the presence of inspissated mucus blocking up this passage. These are, in general, relieved by injections with Anel's syringe, or the occasional introduction of a small probe. A stillicidium of tears is sometimes caused by polypi, or fungous tumours of the nose, pressing upon the lachrymal sac or duct—by exostosis, caries, or exfoliation of the small bones in the vicinity of these organs, and by malignant herpetic ulcers about the inner canthus, destroying the sac and canal.

Pure Inflammation of the Lachrymal Sac.— Dacryocystitis Idiopathica.

Inflammation of the mucous lining of the sac, as an idiopathic disease, is of very rare occurrence; most commonly it is attended with some particular diathesis or taint of system. The disease commences generally with a small, circumscribed, hard, and very painful tumour in the inner canthus of the eye, immediately in the situation of the lachrymal sac. This tumour, which has much the size and figure of a bean, is at first of a pale red, but by degrees assumes a darker colour, and is accompanied with an obtuse, deep-seated pain at the root of the nose, shooting at times into the orbit. The inflammation and swelling extending to the lachrymal ducts and puncta, the absorption and transmission of the tears to the sac is suspended, occasioning a constant stillicidium over the cheeks. If the disease be violent or long neglected, the inflammation may propagate itself to the orbicularis muscle and integuments of the lower eye-lid, so that the particular swelling of the sac becomes lost in the general intumescence of the parts. This inflammation is commonly of the erysipelatous kind, and in persons of great irritability is accompanied with severe pain in the head, and general fever.

When these symptoms have continued for a few days, the second or *blennorrhœal stage* commences, and the lining membrane of the sac and ducts secretes an unusual quantity of puriform matter. The anterior part of the sac, or that portion which is not tied down by the bone, swells, and a fluctuation is distinctly observable within the sac. The swelling increasing, its redness is rendered gradually darker, and the skin over the tumour appears more shining or polished. In the centre of the tumour will be seen a yellowish, pale, soft spot, characteristic of matter having formed; and it is now that the surgeon should proceed with his lancet to lay open the abscess, in order to avoid any fistulous openings, or prevent a true fistula of the sac. The abscess, indeed, may burst spontaneously, but it is always preferable to make an artificial opening; otherwise the matter is very apt to burrow for some distance under the integuments of the lid, and discharges finally through so narrow and small an aperture, that the fluid contents only of the sac escape, the thicker and more tenacious parts being left behind.

It is this condition of the lachrymal sac only, to which the term *fistula sacci lachrymalis*, is at all appropriate.

It does not happen in all cases, or even in the generality of them, that the abscess points or opens directly opposite, or in a line with the ulcer of the sac. Most commonly the opening of the sac is at some distance from the external orifice, and we have one or more long and narrow sinuous passages running between the sac and orbicular muscle, or between the latter and the skin.

The diagnosis is not difficult in these cases; for on pressing upon the upper part of the sac, there will be seen to flow from these openings not only pus or matter, but the mucous secretion from the membrane of the sac. If the puncta have again resumed their office, the tears will be found more or less blended with this mucus.

The puriform secretion from the sac is kept up for some time, and continues to be discharged through these orifices. From being thick, whitish and opake, it is gradually rendered more transparent and limpid. The swelling of the ducts and canal diminishes, the tears are again absorbed, and mixing with the mucus, transmitted through the nares; the fistulous openings heal, and a spontaneous cure of the disease is thus effected.

Treatment. In the early or inflammatory stage of this disease, our chief object should be by cooling and astringent applications, and leeches to the part, to discuss the swelling and inflammation, and prevent its running into the suppurative stage. When these no longer succeed, and the symptoms indicate the formation of matter, it is best to promote the suppuration by warm and relaxing fomentations and poultices to the part. As soon as the suppuration is complete, or the centre of the sac has become soft and white, no time should be lost in opening the tumour and giving free vent to the matter contained within it. Care should be taken to make this incision of sufficient size to evacuate the whole of the sac, avoiding at the same time going so deep as to wound its posterior surface. After freeing the sac, a small pledgit of charpie, moistened with Sydenham's tincture, should be introduced into the wound, and a small slip of diachylon plaster applied over this to retain it. If the sac be hard or diseased, or continue to secrete an unhealthy puriform matter, the tent of charpie may be anointed with some astringent salve*, and the sac injected daily with the Sol. Lapid. Divin. Where the puncta remain open and perform their functions, a few drops of the same solution may be dropped into the inner canthus of the eye. It is not until the natural secretions are once more restored, and pass off entirely through the nasal duct, that we are permitted to discontinue the dressings, or attempt the union and closure of the external wound; for it is obvious, that if this be done before the tears and mucous find vent through the nares, they must accumulate again in the sac, and induce a disease, precisely similar to that the operation was intended to relieve. Where these ducts are impervious, they are to be treated on the plan recommended under the head of fistula lachrymalis.

---

* Professor Beer makes use of the following :—

℞. Butyr. recent. insuls. Unc. semis.
Hydrarg. Nitrico-Oxydi, gr. x.
Tutiæ pptæ. Gr. vj. M. exactissime.

Blennorrhœa Sacci Lachrymalis Scrofulosa—Strumous Inflammation of the Lachrymal Sac.

The scrofulous inflammation of the sac produces in its commencement so little pain or inconvenience, that it is oftentimes overlooked by the patient, until the mucus has accumulated to such a degree, as considerably to distend the sac. The disease makes its attack in some cases with an erysipelatous inflammation of the lids; but the affection of the sac may always be recognized by a peculiar hard swelling in the situation of this organ. On a slight pressure, exerted by the finger upon this tumour, the mucous will discharge itself through both puncta; it very seldom happens that any portion of this finds vent through the nose, as it is prevented from pursuing this course, by the swelling of the membrane lining the nasal duct. The patient complains of an unpleasant sense of dryness in the nares of the side affected.

The mucus discharged from the sac varies in quantity and consistency in the different stages of the disease. In the commencement it is thin and whitish, but gradually assumes a more viscid, yellow, and puriform appearance. The discharge is generally increased after a full meal, and of a thicker consistency; it is thinner, on the contrary, when the patient has exposed himself for some time to a cold and moist atmosphere. It is always lessened on exposure to a temperate and dry air; hence it is that the disease almost entirely disappears during the heat of Summer, and the patient thinks himself completely relieved, until the return of Winter again renews the affection.

This chronic inflammation of the sac is seldom an original or primary affection, but is most commonly the effect of disease propagated from some of the neighbouring parts. It is very often induced by an inflammation of the Schneiderian membrane of the nose, or from a strumous affection of the glands of the eye-lids, extending to the membrane of the lachrymal sac. Sometimes it is the sequela of some more general affection of the system, as measles, small-pox, scarlatina; or it is connected with gout, syphilis, disorders of the digestive organs, &c.

Where the disease is rendered habitual, or the inflammation readily relapses, a cure is seldom possible. A favourable change, nevertheless, very frequently takes place at the period of puberty in men, and during the first pregnancy in the female. A much more unpleasant sequela of this inflammation, is the complete obstruction of the ductus nasalis from the swelling or actual adhesion of its walls. The cure is always most difficult where the disease is complicated with some general affection, as syphilis or gout. If the patient neglect to empty the sac frequently, so that it is left in a state of distention; or if he trust solely to the action of the orbicularis muscle for discharging its contents, he will find the tumour gradually increase, and the anterior hemisphere of the sac project more and more from the orbit. By this continual distention of the sac, it loses by degrees its contractile power, and that state of the disease is induced to which Beer has given the name of *Hernia sacci lachrymalis,* but which is, perhaps, more appropriately termed ***Retentio** lachrymarum.*

Treatment. Probing the ducts, or injecting the parts by means of Anel's syringe, so generally had recourse to in these cases, is highly injurious, by the excessive irritation they induce; and it is only necessary, after evacuating the contents of the sac by slight pressure, to drop some mildly astringent lotion into the inner canthus, when it will be taken up by the puncta and conveyed to the sac [*]. The diluted citrin ointment, or Janins' salve, applied by means of a fine hair pencil to the lids, will be absorbed and transmitted in the same way to the seat of the affection. Slight frictions, with mercurial ointment once or twice daily over the sac, after it has been evacuated, will prove very advantageous. As the disease most commonly depends upon some strumous taint of system, attention must be paid to correct this by diet, exercise, or the administration of such tonic medicines as are found most serviceable in the removal of the complaint. If the digestive organs be much impaired, the blue pill, as advised by Mr. Abernethy, will be found an useful adjuvant to the topical plan already advised.

Hernia Sacci Lachrymalis. (Beer.) *Relaxation, or Atony of the Lachrymal Sac.* (Mackenzie.)

This disease is known by a tumour, resembling in shape and size the common bean, seated in the inner canthus of the eye, just below the tendon of the orbicularis muscle, and immediately in the situation of the lachrymal sac. It is entirely void of pain, and readily yields to the pressure of the finger, which forces out, either through the puncta or ductus nasalis, a quantity of this puriform matter. The tumour in some measure disappears with the evacuation of its contents, but soon swells again with a fresh collection of tears and mucus. The few fibres of the orbicularis muscle, which cover the anterior hemisphere of the sac, and serve in their natural state to force the contents of this organ into the nares, have lost by continual distention their contractile power; and the patient, to remedy this, finds himself obliged to press out the contents of the tumour with his finger. The disease seldom arrives to a greater size than that of a common bean.

---

[*] Professor Schmidt highly commends the following collyrium:—

℞. Aq. rosar. Unc. iv.
Acid. nitric. Scr. j.
Alcohol. Dr. j. M. ft. collyrium.

The *Cure* of this disease is to be effected by the application of pressure, kept up in a constant and gradually increasing manner, to the sac. Several machines have been invented for this purpose; but they are attended with the disadvantage of being easily deranged, especially during sleep. The most simple mode of effecting this compression is by means of graduated compresses, over which is laid a firm leather pad or cushion, and the whole supported by a narrow roller, passed several times around the head. The cure is rendered more speedy by moistening these compresses with some astringent fluid, and dropping at the same time a small quantity into the internal canthus, to be carried to the sac through the puncta.

Hydrops Sacci Lachrymalis.—Dropsy of the Lachrymal Sac.—Mucocele of the Lachrymal Sac. (Mackenzie.) *Fistula of the Lachrymnl Sac.*

This is known by an oval or elliptical tumour in the inner canthus, increasing, in some cases, to a very large size without rupture. From the first formation of the disease, the skin is observed to have lost its natural colour, and to partake of a purple or bluish hue; and this has led some authors to describe it as a varix of the lachrymal sac. Like the hernia of the sac, this swelling is not accompanied with the slightest pain; but it differs from this again in not yielding to any pressure. Its contents can neither be discharged through the nares, nor through the lachrymal ducts, as these are rendered impervious. When the tumour has arrived at its greatest height, so as to threaten a rupture of the sac, the patient complains of a painful sense of tension, or rather of pressure, about the root of the nose or in the eye-brows.

Our first object in the *Treatment* of this disease should be to lay open completely the sac. This may be accomplished either with a common lancet or a narrow scalpel, beginning the incision just below the tendon of the orbicularis muscle, and continuing it in a parallel direction with the edges of the eye-lids, or the fibres of the orbicularis, the whole length of the tumour. As the contents of the sac are seldom so fluid as to flow out spontaneously, they are to be extracted by means of a small forceps, taking care, however, in this part of the operation, to avoid seizing the sac itself. The parts are then to be washed out by a few injections with Anel's syringe, and the wound dressed with a small pledgit of charpie, dipped into a little tepid water, and carried through the incision into the sac. This is retained by means of a small slip of court-plaster until the succeeding day.

If it be found on removing the dressings, that there is any blennorrhœa of the sac remaining, this should be remedied according to the plan already laid down when treating of this disease; after which we are to proceed to the second indication in the cure of mucocele, viz. the restoration of the lachrymal passages to their due and healthy functions, or the removal of any obstruction in these ducts, which may prevent the free absorption and transmission of the tears. This obstruction may be caused by one or more of the following circumstances:—1st, By actual growth or union of the sides of the canal; 2d, By relaxation or loss of power in the papillæ and lachrymal ducts; 3d, By thickened and tenacious mucus choaking up the calibre of these canals; and, 4th, By tumefaction or swelling of the mucous membrane which lines these passages.

All these different conditions of the puncta and ducts may be readily recognized by the attentive and experienced surgeon, on a careful examination with Anel's probes. Having satisfied himself that these ducts are permeable to the tears and fluids of the eye, he proceeds to a similar examination of the nasal duct. Taking a common but delicate whalebone or silver probe, he introduces it horizontally into the opening of the sac, until he has reached its posterior wall, when he changes the direction of the instrument to a perpendicular one, in order to reach the nasal duct. Rolling it gently between the fingers and thumb, he pushes it slowly downward and backward, altering, in a slight degree, its direction, where he meets with any resistance. By manœuvring in this way for some time, he may, in many cases, succeed in passing the probe quite through the duct; more commonly, however, the sound is checked in some part of its passage, and cannot be made to advance without causing much pain and suffering to the patient. It is then necessary to relinquish all further efforts, for the time, of overcoming the obstruction; but the sound being laid across the forehead, and kept in this position by a roller round the head, is to remain in the duct until the succeeding day. By repeating this process daily, he may at length succeed in passing a small whalebone or silver probe into the nose. This should be permitted to remain in the duct for twenty-four hours, then to be taken out and exchanged for another somewhat larger; this plan being pursued until the passage is sufficiently large to admit of a small violin string *. This being anointed with any bland oil, is to be introduced in a similar manner with the probes, for about four or five inches of its length; the other end is coiled upon the forehead, and retained by means of a common roller. A small pledgit of charpie, moistened with any astringent lotion, should be introduced at the same time into the sac, and kept there by a slip of adhesive plaster. In order to force the ligature from the nares, the patient is directed to propel the air from his lungs violently and repeatedly through the day, by closing the mouth and opposite nostril; and having effected this, he brings it forward upon the cheek, and binds it down with a slip of court-plaster. At the next dressing, the bandages are removed; a new portion of the ligature, smeared with some astringent ointment, is passed through the duct, by pulling gently the extremity which has protruded

---

* A majority of English surgeons, after freeing the duct in the manner now advised, employ Ware's style, as recommended by this gentleman in his "Observations upon Fistula Lachrymalis." Mr. Travers' practice consists in introducing a fine silver probe through the punctum and ducts, without any division of the sac, and thus removing the obstruction. By several repetitions of this operation, he remarks, the passage is generally rendered permanent. M. Dupuytren has revived the practice of Wathen, in France, and employs a small golden canula, which is thrust into the ductus nasalis, after which the external wound is permitted to unite.

through the nares; the sac and ducts are washed out by an injection with Anel's syringe, the lower part of the ligature cut off and fastened upon the cheek, a small pledgit of charpie introduced into the sac, and the roller applied as before. This practice is to be continued daily, substituting the A and D strings for the E, which was first employed, until the duct is completely restored.

In addition to the mechanical means now advised, it will be necessary to resort to various local applications, in order to correct the morbid condition of the sac and ducts, which has given origin to the disease. If the obstruction has been caused by the mere swelling or intumescence of the mucous membrane lining the duct, we may moisten the seton at each dressing with a little of the vinous tincture of opium, and inject through the canal the lapis divinus solution. The pledgit of charpie which is laid into the sac should, in like manner, be moistened with the opiate tincture. If the mucous lining be hard and thickened, which may be known by the greater resistance offered to the probes on their first introduction, more powerful means are to be employed, as an ointment composed of spermaceti and red precipitate, with injections of corrosive sublimate. A still more active treatment is required where the mucus cryptæ of the sac have taken on a species of scirrhous hardness. The best application, in these cases, is the diluted citrin ointment, rubbing into the inner canthus at the same time a small quantity of mercurial ointment.

This plan of treatment should be persevered in until the swelling and thickening of the parts have completely subsided, and the canal is restored to its natural volumen. The seton is now withdrawn, and the wound dressed for a fortnight, or longer, with a simple pledgit of lint, retained by a slip of adhesive plaster. If, at the end of this time, there is no further discharge from the sac, and the injections pass in a free and full stream through the nares, the external wound may be closed. For this purpose a narrow lancet is introduced into the wound, and turned gently round upon its axis, so as to scarify the callous walls of the fistula, and the lips of the wound brought together by a slip of court-plaster. The union is generally effected in a few days; sometimes there remains a small capillary opening in the sac, which may be cured by touching the parts once or twice with the lunar caustic.

When the nasal duct is so far obliterated, that it is impossible to restore the natural passage for the tears, it has been recommended to make an artificial opening through the *os unguis*, to admit of their discharge. This practice at the present day is completely abandoned; and it is preferable, perhaps, under these circumstances, to destroy the sac, by exciting inflammation in its walls, and permitting them to unite, if the patient will not submit to the inconvenience of emptying the sac as often as it becomes distended[1].

Inflammation and Scirrhus of the Lachrymal Caruncle.—Encanthis Inflammatoria et Fungosa.

The lachrymal caruncle, like the other glands of the body, is liable to inflammation, with all its several terminations in resolution, abscess, scirrhus, &c. The former of these is known by a painful, reddish, and hard tumour in the inner canthus, immediately below the semilunar fold of the conjunctiva. The redness and swelling gradually extend to this membrane, the conjunctiva, and the eye-lids, and there is a constant stillicidium of the tears over the cheeks. The pain is much increased by every attempt to close the eye-lids. As the disease advances, the meibomian glands become affected; the inner canthus is filled with a yellow slimy matter, and the lids are firmly agglutinated during sleep. These symptoms subside again, by degrees, and the disease terminates in resolution; or matter forms, the abscess bursts, and the gland is entirely destroyed.

---

[1] In considering the practice adopted by Mr. Travers, (p. 287.) of dilatation through the puncta, it cannot but suggest itself, that a simple puncture of the sac must be preferable, in most cases, both as regards the facility of treating the nasal canal, and the quantum of pain inflicted on the patient. Mr. Travers admits the objection applicable to his plan of its being "always painful and often tedious." In speaking of the introduction of the style, Mr. Travers, says, "this instrument occupying the sac and duct, can have no conceivable beneficial influence, until it is withdrawn. The disease is transferred from the eye to the cheek, and the oozing of the tears through a small fistulous aperture in the sac, is substituted for their overflow of the natural channel." (Synopsis, p. 369.) In reply to this, it may be stated, that Mr. Ware found that the watering of the eye ceased as soon as the style was introduced. That the style affords no obstacle to the natural descent of the tears into the nose, after twenty-four hours, will be generally evident, especially, if the diseased state of the mucous passages has been corrected by weak astringent injection, or, even the use of tepid water. The experience of English Surgery is not favourable to the use of Wathen's tube, permanently introduced. "I have more than once," says Mr. Travers, "heard patients sorely regret that they had submitted to its introduction, having received no degree of permanent benefit from the operation; and I have been called upon to remove it, (which is not easily done) in one case, from the disease set up in the contiguous soft parts, and in others, from an exasperation of the symptoms of the complaint. Synopsis, p. 377. EDITOR.

Where the inflammation is more slow in its progress, or neglected by the patient, the caruncle assumes a fungous and spongy growth, which often arrives at a very great size, and considerably impedes the actions of the lids. Most writers have termed this tumour the encanthis *maligna*. Professor Beer more properly stiles it the encanthis *fungosa;* as he has seen no instance of its ever becoming malignant, or degenerating into cancer.

This species of encanthis, however, which arises from idiopathic inflammation and suppuration of the gland, is to be carefully distinguished from another, which is truly malignant or carcinomatous, and the purely scirrhous tumour. In the former of these, or the malignant, the excrescence is of a dark red or leaden colour, extremely hard and painful; in the second, or scirrhous, the tumour is more unequal or granulated upon its surface, of a pale red colour, and entirely void of pain. Where the malignant degenerates into the open form, it will be seen to shoot out a fungous growth, which bleeds from the slightest causes, and discharges a thin, acrid, and highly offensive ichor.

The only *Cure* for encanthis, is the complete excision of the diseased part. This should be practised in the manner recommended, when speaking of pterygium, not with the ligature and hook, but with the common forceps and scissors. The pain is, in general, very severe, and the hæmorrhage at times unusually great, but is easily checked by the application of a little cold or ice water. The eye should be bound after the operation with the common linen compress bandage. As soon as the inflammation has subsided, and suppuration is established in the part, recourse should be had to escharotics, to repress a second growth. Touching the part with alum, or the sulphas cupri, will, in general, be found sufficient for this purpose.

Professor Beer speaks highly in his lectures of fomentations of the sedum acre in the malignant encanthis; and I have seen two cases in which its employment was attended with very decided benefit. In one of these, the disease had attacked the bone, but yielded daily under the use of an infusion of this plant.

PART IV.

OF THE DISEASES

WHICH ATTACK THE EYE-BALL.

Fungus Hæmatodes Oculi.—Soft Cancer of the Eye.—Carcinoma Bulbi.

THIS disease, which is known also under the names of soft cancer and medullary fungus, has its origin most generally in the medullary substance of the retina, or the fibrous texture of the sclerotic coat. It is not, however, peculiar to these, but may arise in any other of the tissues of the eye, if we except the cornea and crystalline lens. It attacks most commonly infants and children, though adults are not entirely exempt. One third of the cases enumerated by Dessault, as falling under his charge at the Hotel-dieu, of Paris, occurred in children under the twelfth year*.

The first symptom of the disease is a white shining metallic appearance in the fundus of the eye, which Scarpa compares to a piece of polished iron. It is generally covered by a plexus of vessels, which extend gradually throughout the vitreous humour. A similar appearance is sometimes observed in incipient amaurosis, more especially in that species which has been denominated by Beer, the Cat's eye amaurosis; and this has occasioned the two diseases to be frequently confounded. A more narrow inspection of the eye, however, may enable the surgeon to distinguish between the two affections. In the malignant fungus, this opake spot is observed projecting from the retina; it is progressive, and accompanied with much constitutional irritation. In amaurosis, on the other hand, it presents a concave depression, and continues for a long time stationary. The opacity increasing by degrees advances to the pupil, and in this stage may be mistaken for cataract. In the latter, however, the opacity lies close behind the pupil, whilst in the fungus hæmatodes, it is situated deep in the posterior part of the eye. In cataract too, the pupil retains its contractile power; in the fungus of the eye, it is usually found dilated[1].

---

* Vide *Œuvres Chirurgicales de Dessault, par Xavier Bichat.* Tom. ii. Paris, 1801.

As the disease advances within the eye, the sight is more and more impaired; sometimes the patient is completely blind before any opacity is perceptible, and he complains of sharp lancinating pains, which dart suddenly through the eye in different directions. In a short time, the crystalline becomes opake, the eye-ball enlarges, the sclerotica assumes a deep leaden colour, or is staphylomatose; the vessels of the conjunctiva are much dilated, and the eye-lids are distended and varicose. The disease extends to the cornea, this tunic is rendered turbid, dies, and permits the fungus to escape externally. The child now becomes lethargic and heavy, the countenance is pallid, the bowels torpid, and the digestion bad; and after much suffering, the little patient dies from exhaustion, or is carried off in convulsions.

---

[1] In the earlier periods of fungoid growth from the posterior part of the eye, flakes of yellow matter are frequently seen to gravitate to the bottom of the anterior chamber. EDITOR.

The disease generally attacks one eye only, and is most commonly excited by a blow, or other injury inflicted upon the organ. In some rare instances both eyes are affected, and the disease is seen to arise without any apparent cause[1].

On dissection it is found that not only the contents of the eye-ball, but that of the optic nerve, and in many cases the brain itself, are all involved in the disease. The morbid growth itself has, in almost every instance, the appearance of medullary matter. It is chiefly composed of an opake, whitish, homogeneous matter, having the same degree of pulpy softness and tenacity with the brain, mixed with a filamentous substance resembling the cellular membrane. Bony matter has also been found in some of these tumours *.

---

[1] If I presumed to judge of the frequency of fungoid disease in both eyes, from my own observation, I could concur only in an opinion of its comparatively rare occurrence. It is, however, perhaps, worthy of observation, that a fungoid disease of the eye is sometimes attended by rapid shrinking and collapse of the organ, and this circumstance is perhaps more frequently noted in affection of a second eye, while the fungoid disease of the opposite organ is still in full activity. The rapid development of fresh disease in remote parts may be often noted on the removal of fungus hæmatodes, and similar growths. These local affections seem often essential to the temporary tranquillity of the constitutional diathesis in other parts. EDITOR.

This affection is to be distinguished from the true *Carcinoma* of the eye, which has its origin, in general, from the external part of the globe, or its appendages [1]. Most commonly this disease is seated in the conjunctiva, and is analogous to the cancerous affection which attacks the mucous tissue of the fauces or rectum. Like these too, it is at first of a mild and benign character, but is rendered malignant from improper or harsh treatment. In most cases the disease is confined to

* Vide *Observations on Fungus Hæmatodes, or soft Cancer.* By James Wardrop, p. 16. Edinburgh, 1806.

---

[1] The distinction of cancer, fungoid disease, medullary tumour, and melanosis, have not yet been attended with any available advantage in treatment, while numerous observations tend to shew their existence in one and the same constitution. I had lately an opportunity of directing the attention of my friend, Mr. Langstaff, to a case of cancerous affection of the anterior appendages of the eye, with considerable tumour of the orbit, in a bullock in Smithfield. Mr. Langstaff, with his accustomed zeal, transferred the specimen to his valuable Museum, and found, on examination, a combination of unequivocal melanosis. These diseases, as I am informed by the same gentleman, are not unfrequent in cattle.

EDITOR.

the conjunctiva of the sclerotic coat, which is so much swollen as to protrude to a considerable distance beyond the eye-lids, and conceal the cornea in its folds. Sometimes it extends to the lachrymal gland and caruncle, and to the eye-lids; or is propagated to the membrane lining the nasal duct and antrum, so as in the end to break up their structure; and the whole cheek presents one mass of disease. The peculiar character of the ulceration, the fœtid ichor discharged from its surface, the acute lancinating pains which accompany it, together with the cartilaginous hardness of the fungus, are sufficient to enable us to form a just criterion of the cancerous nature of the disease.

We know of no medicines capable of checking or controlling these malignant disorders; nor are the precise circumstances which render the operation of extirpation necessary, satisfactorily ascertained. In all cases of the first or medullary fungus, the operation has failed when it has been attempted; and in some has even accelerated the fate of the patient. In carcinoma, on the contrary, the extirpation may be resorted to with greater prospect of success; especially if undertaken before the fungus has passed from a state of softness to that of a carcinomatous or scirrhous hardness[1].

---

[1] I have seen several extirpations of the eye for fungoid growth, and have seen no case, whether subjected to the operation or not, in which eventual circumstances did not militate against the expediency of such a measure. The application of the liq. opii.

The operation itself is extremely simple. The patient being placed horizontally, and the lids separated by an assistant, the eye should be drawn forwards by means of a common hook. Most surgeons advise the introduction of a ligature through the cornea for this purpose; the hook, however, is preferable, as it admits more readily the globe to be directed in the most favourable positions for the operator. If the eye is very protuberant, so as to be fast bound down by the eyelids, a small incision may be made with a scalpel in the outer canthus. A straight, narrow bladed knife, slightly curved on its sides, having a double edge, should then be carried around the eye, close to the circumference of the orbit, care being taken to avoid cutting into the tumour. The optic nerve and muscles of the eye, are to be divided as near to the foramen opticum as it is possible to carry the knife. The hæmorrhage consequent upon the operation, is easily checked by washing out the orbit with a little cold water; after which the lachrymal gland should be carefully removed. Many surgeons are in the habit of plugging up the wound with charpie, but this always excites a very extensive suppuration of the parts, or by its pressure upon the nerve, may

---

sedativus is attended with relief of suffering. Where hæmorrhage continues from the surface of a protruding fungus, the application of dry lint, and flour with cold water, or ice externally may be necessary. The constitutional irritation, under the most malignant appearances of the disease is often trivial. EDITOR.

even induce convulsions. It is sufficient to close the eye-lids, applying over them a folded compress, wetted with any astringent lotion. If much irritation or pain take place after the operation, an anodyne may be administered.

Strabismus.—Squinting.—Luscitas.—Oblique Position of the Eye.

Both these diseases are generally described by writers under the name of Strabismus, although there is a very obvious distinction between them. The patient finds it impossible, in either case, to direct both axes of the eye simultaneously upon the same object. In strabismus, however, he may direct one or other alternately, as he pleases, upon such object; in luscitas, on the other hand, the eye is so completely fixed in its position, that he is unable to alter its direction without rotating the head. The former may take place in both eyes, the latter more commonly affects one eye only.

Strabismus has been divided into several varieties, according to the different direction which the optic axes assume. When they are turned outwards, the disease is denominated strabismus *divergens;* in the opposite direction, or where the eyes meet as it were at the root of the nose, it is called strabismus *convergens.* The strabismus *pa-*

rallelus, is that variety in which the optic axes move continually parallel to each other; in French it is termed *un faut trait dans la vue.*

Strabismus is generally accompanied with more or less of diplopia or double vision. This is especially troublesome in the recent stage of the disease, disappearing gradually with the progress of the complaint. When the strabismus exists to such a degree that both eyes cannot be directed simultaneously upon the same object, double vision of course cannot take place.

The *Causes* of strabismus are various. It is most common in infants and children, and arises from the pernicious habit of holding their toys too near the eyes, or from their gazing continually when awake, upon some favourite object in the room, as the window, mirror, clock, &c. At a later period of life, it is most commonly occasioned by some inequality in the strength or focal power of the two eyes. Strabismus may arise also from specks upon the cornea, and warts or tumours upon the nose. It is often concomitant upon difficult dentition, worms in the stomach, hydrocephalus, &c. Many persons are afflicted with a transient strabismus, whilst under the influence of the depressing passions, as grief, fear, &c.; in others, it arises from long protracted night vigils or excessive study.

Luscitas, on the other hand, is most generally produced by those causes which act directly upon the muscles of the globe, or the nerves supplying these powers. Thus it is often caused by a wound of the frontal nerve, or some violence inflicted upon the eye; or it is consequent upon fits of apoplexy, palsy, hemiplegia. In the latter case the eye is generally directed towards the external canthus, and there is at the same time paralysis of the upper eye-lid. The disease sometimes takes place without any obvious cause. Morgagni relates the case of a priest who saw double, whenever he lowered his eyes in reading, the letters of his book appearing confused and jumbled together. This confusion ceased as soon as he closed one eye, or raised the book to a level with his eyes. Exostosis, tumours forming in the orbit, a scirrhous or enlarged state of the lachrymal gland, frequently give rise to luscitas. The disease is often caused by convulsions in early youth.

Strabismus is, in general, more difficult to relieve in proportion to the degree of the affection, to the length of time it has existed, or to the age of the patient. In the child it often disappears spontaneously with the evolution and growth of the body; in the adult it never terminates thus happily. The disease is absolutely incurable when it is the consequence of a cicatrix of the cornea, contusion, or actual rupture of the muscles which move the eye-ball.

In the *Treatment* of this distortion, it will be necessary to pay particular attention to the causes which have produced it. When, therefore, the affection is merely symptomatic, as when it proceeds from irritation of the stomach, dentition, &c., our remedies should be directed towards the general disease. In childhood, this imperfection in the sight is easily corrected by removing the objects about which the child is occupied to a greater distance, or in a different direction from the eyes. In boys, but more especially in girls, it is often possible to remove the squint, by reminding them constantly of the deformity, and urging them to correct it; for by habit they may gain considerable power over the muscles moving the eye-ball. The patient, for this purpose, should be directed to stand before a looking-glass, and ordered to fix each pupil of the eye upon its image in the glass. By repeating this experiment several times in the course of the day, the eyes will soon fall into their natural axis again.

When the disease depends upon a weak state of the retina of one eye, the stronger eye should be covered frequently through the day with a shade or bandage, and the weaker exercised for ten or fifteen minutes in reading, or some other employment. In this manner, the equilibrium between the two organs is soon restored. If the strabismus, on the other hand, be caused, not by any debility of the nerve, but by a difference of focal power in the two eyes, it is best remedied by the occasional use of a double concave glass to the shorter-sighted eye.

Luscitas, or the oblique position of the eye, is, in general, incurable. When it depends, however, upon atony of the muscles, or loss of nervous power, as when it arises from paralysis, hemiplegia, &c., electricity, or frictions about the forehead and temples, with the various stimulating embrocations, may be resorted to for its cure.

Near Sight.—Myopia.

It is a matter of common observation, that every person, in order to enjoy the most distinct and clear vision, places the object which he surveys at a certain point or distance from the eyes. This point is termed by opticians the *punctum distinctæ visionis*, and is usually situated at about fifteen or twenty inches from the organ. When this punctum approaches very near the eye, or the person sees but indistinctly at a small distance from him, he is said to be near-sighted, or myopic; when, on the contrary, he enjoys but a confused vision of all such objects as are near him, and sees with greater accuracy those that are distant, he is said to be far-sighted, or presbyopic.

The former, or short-sightedness, generally occurs at an early period of life, and is owing to the too early refraction and convergence of the rays of light into a focus. Hence it happens, that the rays fall scattered upon the retina, and leave but a confused and faint impression of the picture that is presented to the eye.

The causes of this too early refraction are not always very obvious. Sometimes it is occasioned by an evident change in the sphericity of the cornea, or its assumption of a conical shape. The latter of these states, as already noticed when treating of conical cornea, is not only productive of short-sightedness, but a great degree of indistinctness and confusion in the vision. A too great convexity in the anterior half of the crystalline lens, or an increased quantity of the vitreous humour, may give rise to this imperfection in the sight. Another cause of this too early convergence of the rays of light, consists in a faulty or increased length of the axis of the eye, produced by the frequent action of the two oblique muscles in viewing objects too near the eye, or exercising the organ habitually with minute objects or microscopic glasses. Hence it is that short-sightedness is extremely common in persons of studious habits, in watch-makers, engravers, &c.

Short-sighted persons, in general, distinguish minute objects with great accuracy, and this is attributed to their seeing such objects somewhat magnified. Upon the same principle we may account for myopic persons writing most commonly in very small hand, and reading, without fatigue, books printed in the smallest characters.

From what has been said respecting the various causes of short sight, it is evident we can seldom hope to remedy it completely. It is only when this defect in the vision has arisen in early youth, from viewing all objects too near the eye, that we can hope to correct it, by obliging the child to look on such as are more remote. When the short-sightedness has existed for some time, or occurs in artizans, men of studious habits, &c., the only mode of remedying it, is by the cautious employment of double concave glasses. Care should be taken in the choice of these, that they be not too concave, as the eye soon accommodates itself to them, and is rendered more short-sighted. Thus, by changing from one glass to another, the defect is always increased, until at length the patient finds it impossible to procure a glass of sufficient power to afford him useful vision. In the choice of his glasses, he should select those which enable him to read, with the least fatigue or exertion, a tolerably small print at the distance of about fifteen or twenty inches from the eye.

Distant Sight.—Presbyopia.

As the near-sighted person sees no objects distinctly unless they are brought within the distance of fifteen or twenty inches of the eye, so the distant-sighted cannot distinguish accurately unless they be removed beyond this point. This imperfection in the vision arises from the rays of light being too slowly refracted by the eye; the image of the object from without is cast, on this account, behind the retina, and excites but an imperfect impression.

The presbyopic person complains, in general, that the light is too feeble to enable him to see distinctly; and when he takes up a book or paper to read, he lights two or more candles, or places one between his eyes and the book.

Distant-sightedness most commonly occurs at an advanced age, and increases with the number of years; in some rare cases, however, it is found to diminish with the age of the patient, and persons have been known to recover their former sight at eighty or ninety years, who had for some time previous been presbyopic. It is seldom known to affect youth.

There is no other mode of correcting this imperfection of sight than by the use of double convex glasses; and in the selection of these, it will be necessary to attend to the same circumstances pointed out under the head of short-sight.

Atrophy of the Eye-ball.—Phthisis Bulbi.—Phthisis Corneæ.

Atrophy, or collapse of the eye-ball, may arise in two different ways. Either, part or the whole of the eye-ball has inflamed and suppurated, and the contents are thus discharged, or during this state of inflammation, and without any previous suppuration, the eye-ball is gradually seen to lessen in bulk, an absorption of the coats and humours takes place, and the eye recedes into the orbit. This condition of the eye is more properly termed *Atrophia, Aridura Bulbi, Phthisis Bulbi.* If the disease be confined to the cornea alone, it is called *Phthisis Corneæ, Rhytidosis,* &c. The cornea under these circumstances assumes a dirty leaden colour, the conjunctiva covering it is destroyed, it is no longer convex and transparent, but flat and opake, and greatly diminished in circumference.

Atrophy of the eye is most commonly the consequence of general inflammation of the organ. It seldom or never arises from the purulent ophthalmia or pure iritis, unless the inflammation has extended to the interior tunics; it is frequently the sequela of arthritic ophthalmia, as this involves more particularly the inner coats and humours. Injuries or wounds of the eye, causing the escape of the crystalline and vitreous humours, may occasion atrophy of the eye-ball; hence it is sometimes consequent upon operations of this organ.

Phthisis of the cornea, on the other hand, is most commonly the product of the purulent ophthalmia, especially when this tunic is affected with fistulous or sloughing ulcers, or the disease has been for a long time neglected. It may arise likewise from the constant friction of the cilia over the cornea in trichiasis, from exposure of this tunic in lagophthalmos, or from the contact of strongly corroding and acrid substances, as lime falling into the eye, &c.

The *Prognosis* in these diseases is always very unfavourable, as the eye has generally suffered more or less disorganization in its structure, and all that can be attempted by the surgeon is to remove, in some degree, the deformity, by the adaptation of an *artificial eye.* Even this is not always practicable; for in the majority of cases, the irritation excited by such foreign body between the eye-lids is so great, that the patient is unwilling to submit to its introduction; or the remnant of the eye-ball which rests in the socket is so small, as to afford it no support after it is introduced. The artificial eye, therefore, is seldom of any use after extirpation of the eye-ball, or when the wasting of the eye has proceeded to such a degree as to leave merely a small immoveable knob or button in the socket. It is only in those cases where the eye-ball is too small, where the pain, inflammation, and discharge from the eye and lids have entirely ceased, that it can be employed with any advantage.

The artificial eyes at present used, are made either of glass or a thin plate of gold enamelled and painted. The former have the disadvantage of being easily broken, and are seldom made to fit so completely, or to resemble so exactly the natural eye, as those which are made of gold. The best are obtained from the manufactory of M. Desjardins, at Paris; and these are greatly preferable to the glass eyes made at Venice.

The artificial eye should possess the same form and dimensions with the sound one. Particular care should be taken in its construction to imitate as near as possible the colour of the iris, the size of the pupil in its middle state of distention, the exact protuberance of the cornea, and the tint and hue of the sclerotic coat, with the vessels which traverse it. Where the artificial eye is well made, the deformity indeed is scarcely perceptible.

It is to be introduced in the following manner: The upper eye-lid being drawn outward by the thumb and fore-finger of the left hand, the upper edge of the artificial eye, previously moistened, should be thrust under it as high as possible. The lower lid is then depressed in the same manner, so as to enable the inferior edge of the new eye to glide over it into the socket. The lids will afterwards retain it in this position. It should never be left for any time in this situation on its first introduction, but withdrawn as soon as the patient complains of any pain, or the eye-lids are discovered to swell and become red. This is easily accomplished by thrusting the head of a common pin under its lower margin, by means of which it is to be drawn gradually downward, until it falls without the eye. If the pain or irritation be caused by any point or uneven parts of the new eye, these should be filed off. The eye should be introduced in this manner daily, until the patient is enabled to bear it without any inconvenience. It will be necessary, however, to remove it each night, it order that the mucus collected beneath the eye-lids may be washed out. In warm weather, this may be repeated once or oftener through the day, as the matter is more apt to collect and become acrid during this season.

General Varicose State of the Eye-ball.—Cirsophthalmia. Varicositas Universalis Oculi.

This form of disease is one among the most unfortunate terminations of ophthalmia, and is characterized by the following symptoms: The vision is completely destroyed, the eye-ball has assumed a globular shape, and increased to such a degree in volumen, as scarcely to admit of its being covered by the eye-lids. The white of the eye is of a bluish-grey or leaden tint, and the conjunctiva, together with the sclerotic coat, is traversed by a number of varicose vessels, containing a dark grumous coloured blood. Sometimes small circumscribed tumours are perceived upon different parts of the sclerotica, caused by the vessels of choroidea having taken on the same varicose disposition. The swelling in other cases is more diffused, and the sclerotica immediately encircling the cornea presents a sacculated or pouch-like appearance. The cornea is generally opake, sometimes staphylomatous; the pupil, if not obliterated by previous inflammation, is much dilated and mis-shapen, and presents a dull opacity behind it; the iris is entirely motionless.

The disease is, in general, caused by arthritic inflammation of the eye-ball, more especially where this occurs in persons of relaxed habits, and has been for a long time neglected. It is often connected with glaucoma of the lens and vitreous humour.

The affection is altogether incurable, and the eye, if irritated by stimulating salves or washes, very frequently assumes a malignant or carcinomatous growth, so as to endanger the life of the patient.

Exophthalmos.—Protrusion of the Eye-ball.

The term exophthalmos is generally applied to that protrusion of the eye-ball which is caused by one or more tumours growing in the socket. Some authors have included under this name also, that kind of protrusion which arises from some injury inflicted upon the muscles of the globe; but this is more properly styled ***Proptosis,*** or procidentia of the eye-ball. When, on the other hand, the affection arises from disorganization of the globe itself, it is known under the denomination of ***Exophthalmia.***

Encysted tumours, forming at the bottom or sides of the orbit, most commonly give rise to exophthalmos. These tumours are in every respect analogous to those which occur in the cellular structure of other parts of the body, and contain, for the most part, a fatty or oleaginous matter; occasionally they are filled with a glutinous fluid, not unlike the white of an egg, and in some cases, they are seen to contain a limpid or sanious matter. Exophthalmos may be occasioned likewise by a collection of pus or hydatids in the orbit, or by exostosis of the bones adjacent to the eye-ball. The disease is frequently caused by fungous tumours arising in the antrum maxillare, the nasal fossæ or frontal sinuses, which in their progress destroy the orbitary plates, and enter the socket. Professor Langenbeck, of Gœttingen, relates a case of exophthalmos, which was caused by a large hydatid that had formed in the frontal sinus, and which was cured by perforating the outer table, and removing the hydatid *.

From whatever cause the disease may arise, it is always accompanied by a most unpleasant train of symptoms. Not to mention the extreme deformity caused by such protrusion, there is always more or less pain in the organ itself, and a continual stillicidium, or weeping of the eye. In proportion as the disease advances, and the globe is projected from its socket, the greater will be the difficulty of closing the eye-lids; sometimes, indeed, the eye-ball is so completely extruded, that it is impossible to cover the eye at all. The organ being in this manner continually exposed to the influence of the atmosphere, inflammation ensues, the cornea is rendered opake, and there is an incessant discharge of puriform matter from the eye-ball and lids. The vision, notwithstanding the great tension of the optic nerve, is seldom entirely destroyed, and generally returns again after the removal of the tumour.

The *Cure* of exophthalmos depends, of course, upon the removal of the cause which has given rise to the protrusion. Where the disease, therefore, has arisen from an encysted tumour of the orbit, this should be dissected from the cavity by means of a small forceps and bistoury. Care should be taken not to injure or wound the walls of the cyst, as such an accident would greatly increase the difficulty of the operation, by suffering the contents of the sac to escape. The fatty tumour is, in general, very easily extirpated; it is more difficult to remove completely the cyst containing a fluid. In some cases, these tumours are seated so deep within the orbit that it is impossible to remove them, without extracting at the same time the eye-ball. If the exophthalmos be caused by polypi or fungous tumours in the maxillary or frontal sinuses, it, in general, subsides with the removal of these tumours.

---

* Vide *Neue Bibliothek für die Chirurgie u. Ophthalmologie.* Band. II. p. 247. Hanover, 1820.

Messrs. Travers and Dalrymple relate two cases of exophthalmos, which were caused by *Anastamosing Aneurism* of the orbit[*]. The nature of the tumour was known by the peculiar vibratory thrill communicated to the finger, and the deep pulsation perceptible in it when pressed upon. It was accompanied likewise by a continual noise in the head, and a varicose state of the vessels of the eye-lids and side of the nose. The disease, in both instances, was cured by tying up the carotid artery of the side affected.

---

[*] Vide *Medico-Chirurgical Transactions*, vol. ii. and vol. vi.

THE END.